Appeal In The Matter Of Department Permits L-24572-24-C-N, L-24572-TF-D-N, L-24572-IW-E-N, L-24572-24-F-N and L 24572-TF-G-N // Approval for Oakfield Wind Project Expansion

- Licensee Exhibit B

  Visual Impact Assessment (Evergreen Application, Section 30) ("VIA")

Section 30
Visual Impact of a Generating Facility

1.0 EXECUTIVE SUMMARY

1.1 Overview

On January 21, 2010, the Maine Department of Environmental Protection (MDEP) approved the application of Evergreen Wind Power II, LLC (Evergreen II) to construct and operate the 51-megawatt (MW) Oakfield Wind Project in Oakfield (DEP#L-24572-24-A-N/L-24572-TF-B-N).

This application by Evergreen II amends the Oakfield Wind Project as follows.

- Change the turbine type and number from 34 General Electric (GE) 1.5-megawatt (MW) turbines with a 77-meter rotor diameter on 80-meter towers to 25 Vestas V-112 3.0-MW turbines with a 112-meter rotor diameter on 84-meter towers. Nine of the permitted turbine locations will be eliminated.
- Change the turbine pad size, the locations of the turbines, and some road locations.
- Add 25 new turbine locations.
- Change the location and type of substation.
- Add a point of electrical interconnection.

This amendment would increase the size of the Oakfield Wind Project to 50 turbines with a potential generating capacity of 150 MW. The GE turbines that were permitted would have been 389 feet tall, fully extended. At 84 meters, the height of the proposed towers will be 4 meters taller. The Vestas turbines will be 19 percent taller at 463 feet, fully extended.

The majority of the land within eight miles of the Oakfield Wind Project is privately owned and managed for timber production, a use that is highly compatible with the installation and operation of a wind project. There are three scenic resources of state or national significance within eight miles that would have a view of the project area: two lakes and one historic structure. Both Pleasant Lake and Mattawamkeag Lake have been identified by the state as 'Significant' by the Maine Wildlands Lakes Assessment.

Although there are four properties on the National Registry of Historic Places within eight miles of the project, only one of them – the Oakfield Grange – will have any views of the project, and those views will be filtered by nearby vegetation. There are no river segments that are noted for their scenic value by the Maine Rivers Study. There are no parks, designated hiking trails, or similar public facilities within eight miles of the project that will have views of the project.

Electricity generated by the turbines will be collected at a new substation located near the eastern end of South Oakfield Road in Oakfield. Electricity generated by the wind turbines will be collected at 34.5 kilovolts (kV), stepped up to 115 kV at the proposed substation location, and transmitted to a point in Chester, Maine where it would tie into the existing Bangor Hydro Electric system. The visual impact assessment of the transmission line is contained in a separate amendment application by Maine GenLead, LLC. Evergreen II and Maine GenLead, LLC are separate legal entities, both owned by First Wind Holdings, LLC.

1.2 Conclusion

There are three scenic resources of state or national significance within the viewshed of the project, i.e., the eastern portion of Pleasant Lake in T4 R3 WELS; Mattawamkeag Lake in T4 R3 WELS and Island Falls; and the Oakfield Grange in Oakfield.

Impacts have been minimized to the maximum extent practicable and will not be unduly adverse. Throughout the majority of the study area, views of the project are consistently blocked by topography, roadside vegetation, and limitations on access.

In its January 21, 2010, order, the MDEP found that "the applicant's visual assessments have adequately assessed the impacts to Pleasant Lake, and the more distant Mattawamkeag Lake. Weighing the various arguments presented against the statutory criteria cited above, the Department finds that the proposed project will not have an unreasonable adverse scenic impact on Pleasant Lake or Mattawamkeag Lake." This finding was affirmed on appeal to the Board of Environmental Protection. The permitted project was based on 34 turbines, each with a total height of 389 feet. The original permitted layout had 18 turbines within three miles of Pleasant Lake, with the closest turbine one mile away. The photosimulation from Pleasant Lake, provided with the June 30, 2009 Addendum to the Visual Assessment for the original Oakfield Wind Project application,[1] showed that five of the turbines would have been visible on one of the hills on the east side of the lake. The original plan was approved for ten turbines on the south side of South Oakfield Road.

The project should not significantly compromise views from Pleasant Lake. The visual impact of the amended layout will be somewhat greater than the impact of the original turbine layout that was approved by MDEP due to the additional visible turbines. However, the closest turbines are now generally more screened from view by surrounding hills. The project should not have an unreasonable adverse effect on the scenic character or the uses related to the scenic character of Pleasant Lake.

The visual impact on Mattawamkeag Lake with the amended application will be increased, as compared to the impact projected for the original approved layout, by the introduction of the additional turbines. Portions of the majority of the turbines would be visible above the horizon. The turbines will be visible from many parts of the lake, but will generally appear to be small to moderate-scaled objects on the horizon.

The site of the Oakfield Grange will not be appreciably altered by the presence of several turbines that may be visible during leaf-off season at a distance of 1.7 miles.

The Oakfield Wind Project amendment has been conceived and designed to have minimal visual impacts on the three scenic resources of state or national significance within the study area. The Oakfield Wind Project will not have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

[1] This photosimulation and the accompanying Addendum referred to above were prepared by LandWorks, Middlebury, Vermont.

2.0 INTRODUCTION

2.1 Background

The Maine Department of Environmental Protection (MDEP) approved the application of Evergreen Wind Power, II LLC (Evergreen II) to construct and operate the 51 megawatt (MW) Oakfield Wind Project in Oakfield (DEP#L-24572-24-A-N/L-24572-TF-B-N). The original Oakfield Project was approved for 34 1.5-MW wind turbines with 77-meter rotor diameters on a series of ridges known as the Oakfield Hills north of Pleasant Lake in Oakfield, Maine. The Visual Impact Assessment (VIA) for the original Oakfield project was completed by LandWorks Landscape Architecture, Middlebury, Vermont (LandWorks). Following the submission of the application to MDEP, Evergreen II discovered that the portion of Pleasant Lake that lies within T4R3 WELS is listed on the Maine Wildlands Lakes Assessment as having significant scenic resources, but had not been included on the listing of lakes on the State's Wind Power Task Force website. When this was discovered, LandWorks prepared an Addendum to the initial application, dated June 30, 2009, that addressed the visual impact on the eastern portion of Pleasant Lake.

This application by Evergreen II amends the original Oakfield Wind Project as follows:

- Change the approved number and type of turbines from 34 General Electric (GE) 1.5-MW turbines, with a 77-meter rotor diameter, to 25 Vestas V-112 3.0-MW turbines, with a 11- meter rotor diameter on 84-meter towers; a reduction of 9 turbines from the original application.
- Change the turbine pad size (to accommodate the larger diameter rotor diameters), the locations of the turbines (turbines spacing is a function of rotor diameter; thus the larger diameter rotors require greater spacing), and some road locations.
- Add 25 additional Vestas V-112 3.0-MW turbines, with 112-meter rotor diameters on 84-meter towers. These would be located on Hunt Ridge and two adjacent hills between Skitacook Lake and the west end of Meduxnekeag Lake (Drews Lake) and south west of Sam Drew Mountain (south of previously permitted turbines) in Oakfield and on the hills to the southwest of Skitacook Lake in T4 R3 WELS.
- Change the location and type of substation and add an additional point of electrical interconnection.
- Realign approximately 3,000 linear feet of the southern portion of the previously approved access road to the turbines on Sam Drew Mountain. The new alignment will be located to the east of the previous alignment, further from River Road.
- Add temporary and permanent meteorological (met) tower locations

Terrence J. DeWan and Associates (TJD&A), landscape architects in Yarmouth, Maine, prepared this VIA of the Oakfield Wind Project Amendment. This report is based upon topographic mapping and design plans provided by Stantec. TJD&A prepared the viewshed analysis maps (Figures 3, 4,and 5), based upon WindPro software, to determine the limits of potential project visibility and the effect on scenic resources of state or national significance.

2.2 Field Investigations

Field data was collected during site visits on July 4 and 21, 2009; October 15 and 16, 2009; and April 15 and 16, 2010. TJD&A fieldwork concentrated on examining and photographing scenic areas of state or national significance within eight miles of the project, i.e., Pleasant Lake, Mattawamkeag Lake, and properties on the National Register of Historic Places.

Most of the photographs of the project area were taken with a Nikon D70 and a Nikon D300 digital camera, recording at the highest resolution. The camera was set to capture images equivalent to those taken by a film camera equipped with a 50 mm (i.e., 'normal') lens, which is comparable to a non-distorted image seen by the human eye.[2] Global Positioning System (GPS) coordinates were recorded with a JOBO PhotoGPS mounted on the camera's hot-shoe to capture the location of the photographs. A selection of annotated representative views within the study area is included in Appendix A: Study Area Photographs. The locations for the photographs are noted on Figure 2A & B: Study Area Maps. Photographs were also used in the preparation of the photosimulations included in this VIA. A greater assortment of representative photographs taken of and within the study area are available on CD upon request.

2.3 Photosimulations

A series of photosimulations (computer-altered photographs) have been prepared to illustrate the anticipated change to views from scenic resources of state or national significance, resulting from the construction of the Oakfield Wind Project Amendment. The following section describes the methodology used to develop these images.

- TJD&A prepared viewshed maps of the eight-mile study area with WindPro[3] software to determine where the turbines may be visible. Topographic information was from the National Elevation Dataset (NED). The topography only viewshed map is very conservative in that it does not account for the screening effects of existing vegetation, buildings, or other structures that will block views of the Project from most roads and population centers. (See Figures 3A, B, & C: Topographic Viewshed Map.)

- TJD&A prepared two viewshed maps using landcover data supplied by the Maine OGIS. Figures 4A, B, & C: Topographic and Landcover Viewshed Map for Blade Tip shows the greatest area from which any part of the turbine could be visible within the study area. In this instance, this corresponds to the tip of a turbine blade in the upright position. The land cover data assumes that the typical tree height is 40 feet. To be conservative, wetlands, regenerating forests, and harvested areas were assigned a value of zero feet. Figures 5A, B, & C: Topographic and Landcover Viewshed Map for Turbine Hub recognizes that blades rising above the treeline may not always be visible (and certainly would not be visually dominant beyond the foreground). This map illustrates the area within which any portion of the nacelle, located 84 meters, 275 feet above the ground elevation, would be visible. The vegetation heights used for Figure 3 are repeated.

- Fieldwork by TJD&A verified the relative accuracy of the viewshed maps and determined the location of characteristic viewpoints to use for photosimulations. The locations were selected to illustrate visual impacts to the two lakes that have been identified as scenic resources of state or national significance. The photographs used in Appendix A: Study Area Photographs and Appendix B: Photosimulations were taken from publicly accessible locations to illustrate the wide variety of landscape types within the study area.

- Photosimulations were prepared by TJD&A using the Visual-Photo Montage WindPro module. A digital elevation model (DEM) of the Project area was created in WindPro from on-line data sources. The specifications of the wind turbines (location, manufacturer, model number, base height, rotor diameter, and color) were entered into WindPro, which created three-dimensional images of the turbines and placed them in the proper location on the model. Digital photographs of the selected views were imported into the computer and merged with the DEM, matching the

[2] The Nikon D300 was set to a focal length of 35 mm, based upon manufacturer's recommendations and field tests conducted by TJD&A. Several of the photographs on Pleasant Lake were inadvertently taken with the camera set for wide angle. These images were adjusted in the preparation of the photosimulations to approximate a 'normal' lens view.

[3] WindPro software was developed for the wind energy industry and is used world-wide for planning, design, and visual representation.

lens focal length, date and time of photograph, digital resolution, and lighting. The DEM was matched with the photograph using the known elevation, latitude, and longitude data from the PhotoGPS log.

- Post-production editing involved eliminating context data and other adjustments (e.g., removing parts of towers that are blocked by terrain, trees, or buildings). Final adjustments were made to account for time of day, weather conditions, haze, and other environmental factors that can change the appearance and visibility of the turbine components.

- The Project model was also inserted into Google Earth to check the registration of the photographs with the computer model, to determine the effectiveness of existing vegetation to block views of the turbines, and to verify the accuracy of the viewshed maps and photosimulations.

- Google Earth was used to determine the relative visibility of the associated facilities, i.e., the proposed access roads, crane pads, and transmission lines. Shapefiles for the associated facilities were imported into Google Earth and then surrounded by 'tree walls' modeled along the edge of the clearing limits. (The height of the 'tree walls' were taken from the viewshed maps; in most instances they were modeled at a height of 40'.) Views from various scenic resources were reviewed in Google Earth. If any associated facilities were determined to be visible, we would have used Photoshop to reflect the changes on the photosimulations. However, none of the associated facilities were found to be visible outside of the immediate foreground; therefore none are shown on the photosimulations Cross section analysis was also used to determine that no associated facilities would be visible from any scenic resources of state or national significance.

- The resultant photosimulations (provided in Appendix B: Photosimulations) were merged into a panorama using Photoshop to provide a more contextual view of the landscape. Each panoramic view is also accompanied by at least one 'normal' view to show what the human eye would see.

The legend in the panoramic views provides the following information.

- Turbines: the manufacturer and model number. All 50 turbines will be Vestas V112 3.0-MW turbines, with 112-meter rotor diameters, mounted on 84-meter towers.
- View Coordinates: Latitude and longitude of the photograph and computer model.
- Viewer Elevation: Approximate distance above mean sea level in feet.
- Direction of View: The compass direction of the photosimulation (indicated by a red dot and arrows on the Viewpoint Location Map).
- Closest/Farthest Visible Turbine: The horizontal distance in miles between the viewpoint and the closest and farthest turbines that may be visible from that viewing location.
- Turbines Visible: The approximate number of turbines that would likely be seen from the specific viewpoint, considering the effects of vegetation and structures.
- Date/Time: When the photograph was taken.

The normal view also provides the distance (in inches) that the reviewer should hold the normal-view photosimulation from the eye to accurately replicate real-world conditions.

3.0 REGULATORY REQUIREMENTS

On April 18, 2008, the Governor signed into law LD 2283 An Act to Implement Recommendations of the Governor's Task Force on Wind Power Development. As part of this legislation, the Legislature found that certain aspects of the State's regulatory process for determining the environmental acceptability of wind energy projects should be modified to encourage the siting of projects in Expedited Permitting Areas.

3.1 Modified Visual Impact Standard

Expedited Permitting Areas include most of the organized areas of the State and specific places within Land Use Regulation Commission (LURC) jurisdiction. All of T4 R3, WELS, as well as every surrounding town and township, is designated as an Expedited Windpower Permitting Area, making windpower an allowed use in those communities. See Figure 1: Expedited Windpower Permitting Areas in Vicinity of Oakfield Wind Project on the following page.

Modifications to the permitting process include, but are not limited to:

A. Making wind energy development an allowed use within certain parts of the State's unorganized and de-organized areas;
B. Refining certain permitting procedures of the MDEP and LURC; and
C. Recognizing that wind turbines are potentially a highly visible feature of the landscape that will have an impact on views, judging the effects of wind energy development on scenic character and existing uses related to scenic character should be based on whether the development will have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

3.2 Scenic Resources

"Scenic resources of state or national significance" as defined under State law means:

A. A national natural landmark, federally designated wilderness area or other comparable outstanding natural and cultural feature, such as the Orono Bog or Meddybemps Heath;
B. A property listed on the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966, as amended, including, but not limited to, the Rockland Breakwater Light and Fort Knox;
C. A national or state park;
D. A great pond that is:
    (1) One of the 66 great ponds located in the State's organized area is identified as having outstanding or significant scenic quality in the "Maine's Finest Lakes" study; or
    (2) One of the 280 great ponds in the State's unorganized or deorganized areas designated as outstanding or significant from a scenic perspective in the "Maine Wildlands Lakes Assessment";
E. A segment of a scenic river or stream identified as having unique or outstanding scenic attributes listed in Appendix G of the "Maine Rivers Study";
F. A scenic viewpoint located on state public reserved land or on a trail that is used exclusively for pedestrian use, such as the Appalachian Trail, that the Department of Conservation designates by rule adopted in accordance with section 3457;
G. A scenic turnout on a scenic highway constructed by the Department of Transportation; or
H. Scenic viewpoints located in the coastal area that are ranked as having statewide significance or national importance in terms of scenic quality in: (1) One of the scenic inventories prepared for and published by the Executive Department, State Planning Office: "Method for Coastal Scenic Landscape Assessment with Field Results for Kittery to Scarborough and Cape Elizabeth to South Thomaston," Dominie, et al., October 1987; "Scenic Inventory Mainland Sites of Penobscot Bay," DeWan and Associates, et al., August 1990; or "Scenic Inventory: Islesboro, Vinalhaven, North Haven and Associated Offshore Islands," DeWan and Associates, June 1992; or (2) A scenic inventory developed by or prepared for the Executive Department, State Planning Office.

The only scenic resources of state or national significance within eight miles of the generating facilities are the eastern portion of Pleasant Lake, Mattawamkeag Lake (see D above), and b) four National Register historic properties in Island Falls and Oakfield (see B above). Of these four historic sites, only one, the Oakfield Grange, will have any visibility of the project. These are discussed in 6.0 Visual

Impacts on Scenic Resources of State or National Significance (below).[4]

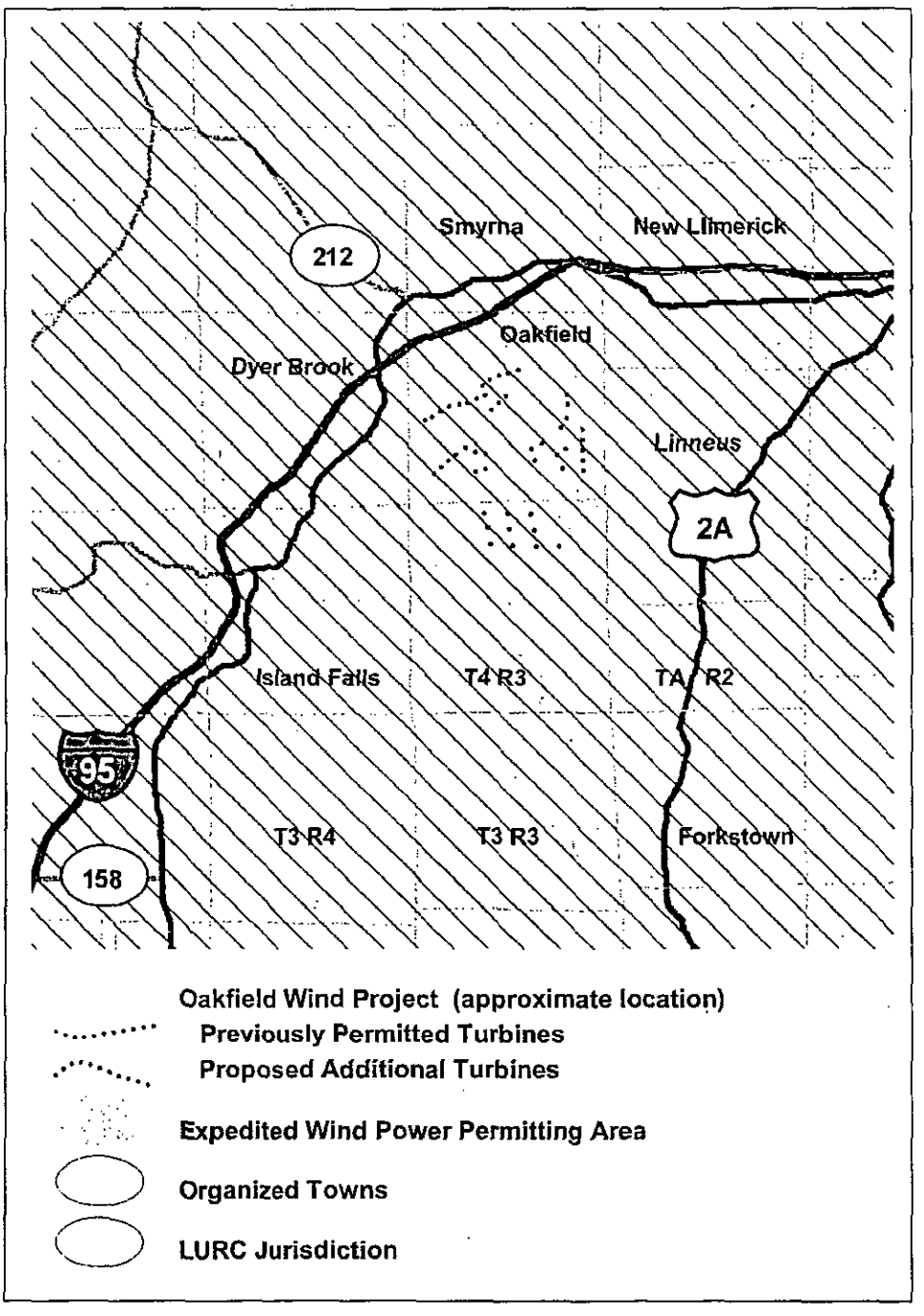
3.3 Regulatory Standard

In making findings regarding the effect of an expedited wind energy development on scenic character and existing uses related to scenic character, MDEP shall determine whether the development significantly compromises views from a scenic resource of state or national significance such that the development has an unreasonable adverse effect on the scenic values and existing uses related to scenic character of a scenic resource of state or national significance. The Legislature specifically removed the requirement that a wind energy development fit harmoniously into the existing natural environment in terms of potential effects on scenic character and existing uses related to scenic character.

If MDEP determines that the associated facilities (i.e., access roads, Operations and Maintenance [O&M] building, substation, turbine pads, meteorological towers, and generator lead line) may have an unreasonable adverse effect on scenic character and existing uses, they are to be evaluated under traditional standards found in 06-096 CMR 375(14) and 06-096 CMR 315. Otherwise, the associated facilities are reviewed under the modified scenic impact standard applicable to the wind generating facilities. As discussed in Section 6.3 below, the associated facilities will not have an unreasonable adverse effect on scenic character and existing uses and therefore are reviewed under the modified scenic impact standard applicable to wind generating facilities. The generator lead line, which has the greatest visibility and potential for unreasonable adverse effects, is the subject of a separate amendment application. To be conservative it has been evaluated pursuant to the traditional visual impact standards under the Site Location of Development Law (Site Law) and the Natural Resources Protection Act (NRPA).

[4] Bible Point, a state Historic Site (but not on the National Register of Historic Places) is located on the West Branch Mattawamkeag River. The site is located in woodland 5.4 miles from the nearest turbine and will not be affected by the project.

Figure 1: Expedited Windpower Permitting Areas in Vicinity of the Oakfield Wind Project



4.0 PROJECT STUDY AREA

4.1 Existing Character of the Surrounding Area

The visual resource study area is defined as the potential viewshed within eight miles of the Oakfield Wind Project, which is illustrated on Figure 2. The regional character is described by the existing landforms, water resources, vegetative patterns, and cultural character.

The viewers' experience is influenced by both the natural resources and the cultural patterns that utilize those resources. The study area is a largely natural landscape with several areas of significant human alteration.

- **Landform**. The study area is located at the southern end of the Aroostook Lowlands biophysical region, which extends from the Saint John River west of Van Buren south to Linneus. Elevations in this biophysical region are relatively low (approximately 600' to 800') except for a few scattered isolated hills and mountains (Squa Pan Mountain, Number Nine Mountain, and Mars Hill), which rise above gently rolling terrain.[5]

  The characteristic landscape within eight miles of the proposed project consists of low rolling hills and ridges (averaging 350± feet in height) covered by dense second growth woodlands and open fields, and broad depressions supporting freshwater wetlands. The Oakfield Hills are the most pronounced of these landforms, describing a broad arc that curves to the northeast. Sam Drew Mountain is the tallest mountain in the vicinity, with a height of approximately 1,000 feet above the surrounding terrain. The site of the project is characterized by a series of small plateaus and low rises that will be used to site individual turbines.

  Pleasant Lake is surrounded by a series of undulating landforms create a well-defined sense of enclosure. The majority of the lakeside development is concentrated at the western end in Island Falls, where the hills are most pronounced, averaging over 400' in height. Low points along the lake open up views to more distant hills, creating the appearance of a layered, more complex landscape.

  The landforms surrounding Mattawamkeag Lake, on the other hand, are relatively low with no obvious focal points. These low hills do not provide the same sense of enclosure or visual interest that characterizes Pleasant Lake. Upper Mattawamkeag Lake is dominated by the presence of May Mountain to the northwest. The remnants of the former ski area are still visible on the eastern slopes of the mountain, facing the lake.

- **Water Resources**. The study area within 8 miles of the project contains approximately two dozen lakes, ranging in size from over 3,330 acres to small ponds less than ten acres. As noted above, only two of the lakes within the study area have been rated 'Significant' for scenic character by the Maine Wildlands Lake Assessment, and none have been rated 'Outstanding.' While a number of rivers and small streams drain the area, none have been noted for their scenic value by the Maine Rivers Study.

- **Vegetative Patterns**. The predominant vegetative cover in the study area is a mixture of second growth forestland, agricultural fields, freshwater wetlands, and old field growth. The vegetative patterns within the immediate area of the project are typical of forestland that has been commercially harvested over the past several generations.

- **Cultural Character**. Cultural features within eight miles of the project are typically small in scale and are concentrated within a few miles of Interstate 95. These include medium sized towns (Island Falls, Oakfield), small towns (e.g., Linneus, Smyrna Mills), lakeside cottages (e.g., on

[5] Bailey, R.G. *Description of the Ecoregions of the United States*. Miscellaneous Publication No. 1391, U.S. Department of Agriculture, Forest Service, Washington, DC. 1995.

Pleasant Lake, Skitacook Lake, and Meduxnekeag Lake), scattered rural residential development, and farmland. Recreational development is concentrated around the larger lakes, especially Pleasant Lake, which features an 18-hole golf course (Va Jo Wa), a large recreational resort, a boat launch, and a large commercial camping and recreation area (Birch Point Campground). Residential scale wind turbines have been installed in several locations in Dyer Brook and Oakfield.

There are no existing structures on the development site area other than the temporary met towers erected by Evergreen II.

4.2 Distance Zones

The concept of distance zones is based upon the U.S. Department of Agriculture Forest Service visual analysis criteria for forested landscapes and on the amount of detail that an observer can differentiate at varying distances.[6] Given the size of the wind turbines that are being used throughout Maine, the distances that have been used to evaluate scenic impacts may have different significance for wind power projects. Nonetheless, the evaluation of foreground, midground, and background provides a useful framework for evaluating the presence of wind turbines and their related facilities in the larger landscape. The distance zones used for the study of the Oakfield Wind Project are defined as:

- Foreground: 0 to 1/2 mile in distance. Within the foreground, observers are able to detect surface textures, details, and a full spectrum of color. For example, the details of the turbines (blades, nacelles, support towers) would be readily apparent. There are no scenic resources of state or national significance within the foreground of the Oakfield wind project.

- Midground: 1/2 mile to 3-5 miles in distance. The midground is a critical part of the natural landscape. The Maine Wind Power Law presumes that a visual impact assessment will be required to evaluate potential scenic impacts to scenic resources within three miles. Within this zone the details found in the landscape become subordinate to the whole: individual trees lose their identities and become forests; buildings are seen as simple geometric forms; roads and rivers become lines. Edges define patterns on the ground and hillsides. Development patterns are readily apparent, especially where there is noticeable contrast in scale, form, texture, or line. Colors of structures become somewhat muted and the details become subordinate to the whole. This effect is intensified in hazy weather conditions, which tend to mute colors and de-sharpen outlines even further. In panoramic views, the midground landscape is the most important element in determining visual impact.

  Since wind turbines are very large and relatively simple objects, their form and color remain readily distinguishable within the midground and well beyond into the background (up to eight miles from the observer). The majority of the turbines seen from Pleasant Lake will be in the midground viewing distance. About two-thirds of the turbines will be seen in the midground from Mattawamkeag Lake.

- Background: greater than 3 to 5 miles.[7] Background distances provide the setting for panoramic views that give the observer the greatest sense of the larger landscape. However, the effects of distance and haze will obliterate the surface textures, detailing, and form of project components. Objects seen at this distance will be highly visible only if they present a noticeable contrast in form or line and weather conditions are favorable. Beyond this distance, most objects will cease to be uniquely recognizable.

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[6] Landscape Aesthetics: A Handbook for Scenery Management. USDA Forest Service. Agricultural Handbook Number 701. December 1995.

[7] For purposes of this visual impact assessment, the background viewing distance is limited to eight miles, since the legislature has determined that "the primary siting authority shall consider insignificant the effects of portions of the development's generating facilities located more than 8 miles, measured horizontally, from a scenic resource of state or national significance." (§ 3452.3.)

Due to the thinness of the design, the outer ends of the turbine blades will be minimally visible in the outer portion of the background. The Maine Wind Power Law has recognized that turbines beyond 8 miles will be relatively indistinct and will not have a significant impact on scenic resources of state or national significance. Some turbines will be visible in the background from Pleasant Lake. About one-third of the turbines visible from Mattawamkeag Lake will be seen in the background.

5.0 PROJECT DESCRIPTION

The following section describes the visible components of the Oakfield Wind Project Amendment.

5.1 Wind Turbines

Evergreen II is seeking approval for a total of 50 Vestas turbines with an output of 3.0 MW per turbine. The model selected is a 3-blade system mounted on an 84-meter tower affixed to a 24±-foot diameter foundation. The turbines will have a blade diameter of 112 meters (367 feet) and a total height of approximately 463 feet. The turbines are controlled electronically so they always face into the wind. All components of the turbine will be painted white.

The blades will spin very slowly in low wind and will begin producing power when the wind velocity reaches approximately nine miles per hour. After the wind reaches a certain maximum velocity, which will vary with the intensity of turbulence, the machines will cut out. The turbines may not be operational at other times, such as when the winds are in-line (wind direction is parallel to the string, which limits the number of turbines that can operate) or when they are taken out of service for repair.

Depending upon the wind velocity, the blades will rotate at 6-16 revolutions per minute (RPM), which is equivalent to approximately one revolution every 4 to 10 seconds. Under proper viewing conditions individual blades will be clearly visible with virtually no detectable blurring while they rotate.

Turbine spacing is a function of meteorological considerations related to wind speed and direction, interference from adjacent turbines, and other technical factors. The siting of individual turbines has taken into account the wind resource, site-specific topography, access road locations, proximity to wetlands, and other site conditions.

5.2 Project Lighting

Lighting for the project will follow the Federal Aviation Administration (FAA) recommendations for aviation safety. Red lights will be mounted on the top of some of the nacelles in accordance with an FAA approved lighting design. Lights are typically required on the ends of turbine strings, and at one-half mile intervals. Under normal operations, the lights will be red, flashing, with a slow-on, slow-off profile. The permanent meteorological towers will also have FAA approved lighting. By using white turbines, which offer a considerable amount of visual contrast for pilots, the FAA will not require daytime lighting.[8]

The L-864 lamp that is specified by the FAA is designed to be most visible to oncoming pilots. The intensity is generally greatest at 1 degree above the horizon. Below the horizon, where the light is no longer needed to warn pilots, the intensity drops dramatically to minimize impacts on the night sky to surrounding residents.

[8] Advisory Circular AC 70/7460-1K. Obstruction Marking and Lighting. Chapter 13: Marking and Lighting Wind Turbines. Federal Aviation Administration, U. S. Department of Transportation. February 1, 2007.

5.3 Ridgeline Roads

Each wind turbine site will be linked by a 35 foot± wide gravel road designed to provide safe travel by the construction crane to the structures throughout construction. In some instances the topography will dictate a circuitous route to accommodate the engineering requirements of the installation equipment and minimize site disturbance. Where possible, existing logging roads will be upgraded to serve as ridgeline roads to minimize cutting and earthmoving. The ridgeline roads will be screened by existing vegetation in most locations and will not be highly visible from outside the immediate area. Because they are significantly higher in elevation, the ridgeline roads will not be visible from either Pleasant Lake or Mattawamkeag Lake, or the Oakfield Grange.

5.4 Access Roads

The access roads into the project will be 24 feet in width and will use existing forest management roads wherever possible to reduce site disturbance. The existing road network will be modified to accommodate the delivery and construction vehicles needed for the project, including limited pull outs for passing of large vehicles. The access roads along South Oakfield Road, Hunt Ridge, and the hills in T4 R3 WELS are existing logging roads. This amendment includes the realignment of a portion of the permitted access road off Thompson Settlement Road continuing north off Nelson Road. This new alignment will mostly follow an existing woods road resulting in a reduction of vegetation removal.

5.5 Electrical Collection System

Underground conductors will connect the turbines to an above ground collection line that will deliver the generated electricity to the substation to be located at the eastern end of South Oakfield Road, approximately one mile north of Mud Lake in Oakfield. The collection line will consist of wooden poles, typically 35-45 feet high, located within a 100 foot cleared right-of-way. Where the collection line is co-located with the access road, an additional 60 feet of clearing will typically be required for the line. The VIA for the generator lead transmission line from the substation in Oakfield to Chester is the subject of a separate amendment application.

5.6 Operations and Maintenance Building

An O&M building, approximately 8,380 square feet in size, will be constructed on Thompson Settlement Road at the intersection of the westerly project access road. The facility will consist of a one-story building that will serve as an office and warehouse, a parking area for up to 10 vehicles, and an area for outside storage. The building will be painted a neutral color to minimize color contrast with the surrounding landscape. Some additional area at the facility will be provided for construction vehicles.

5.7 *Meteorological Towers*

The existing temporary met tower on Drew Mountain will be removed during construction. Four permanent 84-meter (275 feet) towers will be constructed and remain for the life of the project. These towers will be lighted according to FAA requirements, and be of a guyed lattice construction, with a triangular cross section approximately 18 inches across. Their slim profile and light color will greatly reduce their visibility at distances greater than one mile.

5.8 Turbine Pads

A cleared and level pad area up to two acres will be required at the base of each turbine for staging, crane movement, and turbine installation. Additional land may be needed in some areas to account for cut/fill slopes.

5.9 Laydown Areas

The design calls for laydown areas to be used in various locations for temporary storage of turbine and/or electrical components to accommodate the need to potentially store equipment and materials during construction. These areas will be reseeded after construction.

6.0 VISUAL IMPACTS ON SCENIC RESOURCES OF STATE OR NATIONAL SIGNIFICANCE

6.1 Evaluation Criteria in the Maine Windpower Law

As noted in Section 5, there are limited numbers of scenic resources of state or national significance within eight miles of the Oakfield Wind Project. The following section evaluates the potential visual impact on each of these resources, using the criteria in the Maine Windpower Law:

- ***Context.*** *The existing character of the surrounding area and the context of the proposed activity. (35-A MRSA § 3452.3.B and 3452.3.D).*
- ***Significance.*** *The significance of the potentially affected scenic resource of state or national significance (§ 3452.3.A).*
- ***Public Uses.*** *The extent, nature and duration of potentially affected public uses of the scenic resource of state or national significance. (§ 3452.3.E).*
- ***Viewer Expectations.*** *The expectations of the typical viewer who would be using or enjoying the scenic resource of state or national significance. (§ 3452.3.C).*
- ***Project Impact.*** *The scope and scale of the potential effect of views of the Project on the scenic resource of state or national significance, including but not limited to issues related to the number and extent of turbines visible from the scenic resource of state or national significance, the distance from the scenic resource of state or national significance, and the effect of prominent features of the development on the landscape. (§ 3452.3.F).*
- ***Potential Effect on Public Use.*** *The potential effect of the generating facilities' presence on the public's continued use and enjoyment of the scenic resource of state or national significance. (§ 3452.3.E).*
- ***Overall Scenic Impact.*** *A determination of whether the development significantly compromises views from a scenic resource of state or national significance such that the development has an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the scenic resource of state or national significance. (§ 3452.1).*

The assessment of potential visual impact on scenic resources of state or national significance is based upon knowledge of the project site, the viewshed and cross-sectional analysis, and the photosimulations provided in Appendix B. In making a determination of potential visual impact, the review followed the evaluation criteria in the Maine Windpower Law cited above.

The generator lead line, which has the greatest visibility and potential for unreasonable adverse effects, is the subject of a separate amendment application. To be conservative it has been evaluated pursuant to the traditional visual impact standards under the Site Law and NRPA.

6.2 Scenic Areas of State or National Significance

The following section describes each of the scenic areas of state or national significance within the study area. The evaluation concentrates on those resources within three miles of the project and provides additional information on resources between three and eight miles from the project.

A. National natural landmarks (NNL), federally designated wilderness area or other comparable outstanding natural and cultural feature. According to the NNL website (www.nature.nps.gov), there are no National Natural Landmarks within eight miles of the Oakfield Wind Project Amendment.

B. A property listed on the National Register of Historic Places. The National Register of Historic Places lists four properties within eight miles of the Oakfield Wind Project Amendment:

- William Sewall House, Main Street, Island Falls
- Island Falls Opera House, Patten Road and Sewall Street, Island Falls
- Oakfield Station, Station Street, Oakfield
- Oakfield Grange No. 414, Ridge Road, Oakfield.

Field investigation has determined that the only one that will have any project visibility is the Oakfield Grange; views of the project from the other sites are blocked by vegetation and topography. The National Register Registration Form notes that Oakfield Grange #414 owns the Grange building. It is unclear whether the public has legal right of access, although the building is used for Grange meetings and occasionally rented out for family and community functions. According to the Registration Form, there are fewer than a dozen members, and the Grange struggles to maintain the building.[9]

The Grange was nominated to the National Register at the local level of significance for its role within the context of Oakfield's social, political, and entertainment-oriented history. The building sits on a 0.6-acre parcel of land in a small town setting. There is no mention made in the Registration Form about its relationship to the surrounding landscape, which consists of single family homes and commercial structures.

Using WindPro software, it appears that up to 16 turbines, 10 of which are located in previously approved locations, may be partially visible from the Grange during leaf-off season, at a minimum distance of 1.7 miles. Intervening vegetation, topography, and nearby buildings will block views of most of the turbines. The towers proposed for the amendment are 4 meters higher than those proposed in the original application and the blades are 5.5 meters longer. A greater percentage of the individual turbines may be visible through the intervening vegetation.

Overall the presence of the turbines, seen at an average distance of two miles between adjacent buildings and filtered by surrounding vegetation, should not have an unreasonable adverse impact on the Grange or its immediate setting.

C. National or State Parks. There are no National or State Parks within eight miles of the project. As part of the Mattawamkeag Lake acquisition, the Bureau of Parks and Lands acquired 64 acres of land on Long Point and Big Island, both on Mattawamkeag Lake. See the discussion of Mattawamkeag Lake in Section 6.2.D below for further details.

D. Specified Great Ponds. There are two great ponds within eight miles of the Project that have been designated as significant from a scenic perspective in the Maine Wildlands Lakes Assessment: the eastern portion of Pleasant Lake and Mattawamkeag Lake. There are no lakes within eight miles that have been designated as outstanding from a scenic perspective in the Assessment.

PLEASANT LAKE

Context and Character. Pleasant Lake (1,832 acres), approximately 1.0 mile south and west of the closest turbine, is the second largest waterbody in the study area. The western third of the five-mile long lake is located in Island Falls (an organized town under the jurisdiction of DEP), while the eastern portion is in T4 R3 WELS and falls within the jurisdiction of LURC. The lake is surrounded by low hills and ridges that create an undulating sense of enclosure throughout most of its length. The landforms on the north and eastern side of the lake, rising 300 to 700 feet above the surface of the water, limit the visibility of the wind project. Outlet Mountain, at the far eastern end of the lake, is the most distinctive landform and the only named peak surrounding the lake. The Oakfield Mountains, including Sam Drew Mountain, are not visible from the lake.

[9] Maine Historic Preservation Commission, Christi A. Mitchell, Architectural Historian. *National Register of Historic Places Registration Form, Oakfield Grange #414.* August 14, 2006.

The developed portion of Pleasant Lake in Island Falls is typical of many of Maine's accessible lakes, i.e., small summer camps on relatively small lots with docks providing direct access to the water. There are approximately 150 camps and year-round homes surrounding the lakefront in Island Falls. According to the owner of Birch Point Campground, who is a life-long resident of the area, many of the camps have been purchased by out-of-town people in recent years. This population tends to come up for less time during the year, which has reduced the number of people using the lake.[10]

Significance. The Maine Wildlands Lakes Assessment notes that the eastern portion of the lake is accessible and undeveloped and received a resource rating of 'significant' for its scenic resources. The Assessment assigned Pleasant Lake to Resource Class 1B (a lake with a single outstanding natural value, in this case fishing).

Prior to the publication of the Maine Wildlands Lakes Assessment, the State Planning Office issued the Scenic Lakes Character Evaluation in Maine's Unorganized Towns, which evaluated the scenic characteristics of all 1,509 lakes and ponds (with a surface area greater than 10 acres) in LURC territory. The Evaluation was based on six criteria: relief, physical features, shoreline configuration, vegetation diversity, special features, and inharmonious development. A point system was developed to assign a rating to each of the criteria, depending upon their presence in the landscape. The following table provides a short description of each of the criteria and summarizes the findings for Pleasant Lake.[11]

FACTOR	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Complexity of relief Dramatic relief	None	30	0
Physical Features	Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands, beaches.	Medium	25	15
Shoreline Configuration	Relative complexity of the shoreline.	Low	15	5
Vegetation Diversity	Four possible types were identified: mixed hardwood/softwoods; softwoods; marsh; super-story trees.	None	15	0
Special Features	Water clarity Opportunities for wildlife viewing	Medium	15	10
Inharmonious Development	Residential development, visible roads, powerlines, etc.	High	-20[12]	-10
TOTAL				**20**

A total of 118 lakes with a total of 50 or more points were identified as 'Outstanding' in the Evaluation. There were 162 lakes that achieved a score between 20 to 45 points and were identified as 'distinctive', which was the basis for the 'Significant' category. Pleasant Lake is at the very low end of the 'Significant' rating, having achieved a point score of 20. This is assumed to be primarily due to the presence of the cottages on the western portion of the lake, the lack of topographic relief, and low vegetative diversity on the surrounding low hills. Pleasant Lake was not included in the findings of Maine's Finest Lakes, The Results of the Maine Lakes Study, which examined lakes in MDEP's jurisdiction.

[10] Steve Edwards, Owner, Birch Point Campground. Personal communication May 31, 2010.
[11] Maine State Planning Office. Scenic Lakes Character Evaluation in Maine's Unorganized Towns. December, 1986. The ratings in the chart – from None to High – are taken from the SPO document. Individual scores for most categories are assumed.
[12] Maine State Planning Office. Scenic Lakes Character Evaluation in Maine's Unorganized Towns. December, 1986. 20 Points were deducted for lakes with drastic changes in water levels; 10 points were deducted if inharmonious development was rated as 'high'; 5 points were deducted if inharmonious development was rated as 'medium'.

LURC's Comprehensive Land Use Plan assigned Pleasant Lake to Management Class 7, which consists of all lakes not classified into the other six management classes, including many lakes that have multiple outstanding or significant resource values identified in the Wildlands Lake Assessment. LURC manages lakes in Class 7 for multiple use, including resource conservation, recreation, and timber production, giving specific consideration to identified resource values when evaluating the merits of lake-related rezoning and permit applications. It is the Commission's intention that the majority of these lakes remains in Management Class 7 and be managed under applicable requirements.[13]

Maine Department of Inland Fisheries and Wildlife surveyed the lake in 2004 and issued the following description:

> *Pleasant Lake is a very attractive lake located in a hilly area of southern Aroostook County. There are several cleared areas on the hills for farmland, a golf course and a ski area but most of the area down to the shoreline is spruce fir forest. The shoreline is very rocky and drops off quickly into deep water. There are a few sandy beaches and only one wetland area around the lake. The most notable characteristic of the lake is the very clear, greenish tinted water. The upper, northwest, end of the lake in Island Falls is fairly heavily developed but the lower end of the lake in T4R3 is undeveloped.*
>
> *Existing water quality is excellent for the production of coldwater fisheries. The lake does stratify thermally during the summer months and maintains sufficient oxygen in the deeper water for coldwater fishes.*
>
> *The only tributaries to the lake are small and many of these are seasonal. The outlet provides good but limited spawning and nursery area for salmon and trout. Salmon do spawn in the outlet, however, few wild salmon are found in the lake fishery. Salmon and brook trout are stocked each year and produce an excellent salmon fishery and a very good brook trout fishery. An excellent smelt population provides a good food source for salmon and trout. Smallmouth bass are plentiful and growth is slow due to the oligotrophic nature of the lake but there are some large bass in the lake. Pickerel are not abundant due to the lack of habitat. There is one unimproved boat launching site in the cove at the northwest end of the lake.*[14]

Public Uses. Recreational use of the lake includes boating, fishing, ice fishing, camping, swimming, snowmobiling, and seasonal camps. Boat access to the lake is provided at a state boat launch at the northwestern end of the lake and at the Birch Point Campground. As noted above, year-round homes and seasonal camps are concentrated in Island Falls at the western end of the lake.

There are no public records that indicate the use levels on the lake. The owner of Birch Point Campgrounds estimates that 2/3's of the 150 camps on the lake have boats. He has noted that the boat traffic seems to be decreasing as the population ages, camps are sold to out-of-state residents and others 'from away,' and people spend less time at their camps. He estimates that on a busy day there may be two dozen boats on the five-mile long lake. Birch Point has 5-6 small motorboats that they rent; on a busy weekend they may rent out 2-3 of them. They also have 6 kayaks, which are rented more frequently.

The boat launch at the western end of the lake has a gravel parking lot that can accommodate approximately 20 cars/boat trailers. According to the owner of Birch Point, there will typically be 8-10 cars in the lot on a busy weekend.

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[13] Maine Land Use Regulation Commission. 2010 Comprehensive Land Use Plan. Appendix C – Lake Management Program. 2010.

[14] Maine Department of Inland Fisheries and Wildlife. Pleasant Pond, Island Falls, Aroostook Co. Surveyed September, 1948, Revised 1996, 2004.

Ice fishing is still an attraction, especially to people who come up for the day. On a busy winter weekend day, according to the Birch Point owner, there may be as many as 100 people on the ice, including 12-20 in ice shacks.[15]

Viewer Expectations: People who use Pleasant Lake are expected to have moderate to high expectations of scenic quality. Their expectation will be tempered by where they are on the lake. To those in Island Falls (western third of the lake), their expectation will be affected by the number of *waterfront cottages, the golf course, condominium development, and other changes that are visible* from the lake or the approach roads leading to it.

People on the eastern portion of the lake (in T4 R3 WELS) may anticipate a less developed landscape, since the majority of the lakefront is undeveloped. However, motorboats, jet skis, and waterskiing are all allowable activities, which would detract from the sense of solitude that one might expect on a more remote lake. In addition, the land surrounding the lake is commercial forestland, where logging and trucking are an expected part of the experience.

See Addendum: Visual Assessment of the Proposed Oakfield Wind Project, June 30, 2009, for further discussion of viewer expectation for people using Pleasant Lake.

Visual Impact on Pleasant Lake. Three Photosimulations have been prepared to illustrate the visual impact on Pleasant Lake with the amended layout. Photosimulation 1, which is in the portion of the lake that is a scenic resource of state or national significance, is taken from a point near the southeastern end of the lake. From this viewpoint portions of up to 24 turbines will be visible at distances of 2.3 to 6.0 miles. Eleven of the visible turbines will have only their blades visible above the midground hills.

Photosimulation 2 is a view from the central portion of the lake, on the west side of the township line that defines the limit of a scenic resource of state or national significance. While this viewpoint is not in the scenic resource, the view shown would be similar to a photograph taken in the middle of the lake within the designated scenic resource. Portions of 25 turbines will be visible from this viewpoint: up to 13± turbines will be visible at 2.2 to 5.0± miles between the two prominent hills on the north side of the lake; blade tips from 2 turbines will be visible rising behind the rounded hill in the midground at a distance of 2.5 miles; and 10 turbines will be visible in the valley north of Outlet Mountain at a distance of 3.4 to 5.2 miles.

Photosimulation 3 is a view from Pleasant Lake near Whitney Point, at the western end of the lake. This part of the lake in Island Falls is not a scenic resource of state or national significance. Portions of up to 12 turbines would be visible from this viewpoint: one group of three turbines clustered in a notch between two of the lakeside hills to the northeast at distances of 2.5 to 3.6 miles and nine turbines clustered to the east in the valley north of Outlet Mountain at distances of 4.3 to 6.1 miles.

With this amended layout, 20 turbines will be within 3 miles of Pleasant Lake, compared to 18 turbines that were within this range in the permitted layout. While several of the turbines will be highly visible from parts of Pleasant Lake, none of the turbines will dominate the landforms that line the lake or the sky backdrop.

The majority of the year-round homes and summer camps on Pleasant Lake are located on the northern shoreline and are oriented to the south and southeast. Some camps may have filtered views of the turbines in T4 R3 WELS at a distance of 4 – 6 miles. The primary visual impact will be to the camps to the east of Whitney Point on the south side of the lake in Island Falls, and the anglers and boaters who use that part of the lake. Photosimulation 3 is a typical water view from Whitney Point, where the closest turbines are seen at a distance of 2.5 and 3.2 miles.

[15] Steve Edwards, Owner, Birch Point Campground. Personal communication May 31, 2010.

Potential Effect on Public Use. The presence of the turbines will have an effect on the character of the eastern end of Pleasant Lake by introducing man-made elements in a largely natural landscape. The turbines will not interfere with views of the surrounding hills. The Project will not be visible from the majority of the 150± existing camps and year-round residences on the lake. Turbines will be visible from most of the 15± camps on the east side of Whitney Point; the exact number will depend on the location and orientation of the individual residence. As noted in Appendix A, the views to the north from these camps should not be affected; 6-8 turbines may be visible at distances greater than 2.2 miles for homes closest to Whitney Point. Up to 21 turbines may be visible at the eastern end of this group of homes.

As noted above, there are several different groups that currently use the lake. People who fish (either during the normal season or during ice fishing) are attracted to the lake for its outstanding fisheries resource (as noted in the Maine Wildlands Lake Assessment) as well as its significant scenic value. If a person wants to fish in an area that does not include a view of a turbine, there will still be ample opportunities along the northern shoreline. Likewise, people who fish from a boat or on the ice can easily position themselves to avoid views of the turbines

The same observations can be made relative to boating on Pleasant Lake. People who want to experience the lake without turbines can continue to do so by paddling or boating near the northern shoreline. There is some evidence that scenic quality may be less important to people engaged in fishing or motor boating as compared to those who hike or engage in nature study.[16]

As noted above, public use levels appear to be dropping as a result of changing demographics and other factors. The Project should have a relatively minor impact on the public's continued use and enjoyment of Pleasant Lake.

Overall Scenic Impact. The visual impact of the amended layout will be somewhat greater than the impact of the original turbine layout that was approved by DEP due to the additional visible turbines. However, the closest turbines are now generally more screened from view by surrounding hills. The project should not have an unreasonable adverse effect on its scenic character or the uses related to the scenic character of Pleasant Lake.[17] Surveys of similar situations indicate that, while the presence of wind turbines will have a negative effect on the scenic value of the resource, they will not affect people's desire to return to the lake to enjoy water-based recreational activities.[18] The overall scenic impact for Pleasant Lake is rated Low tending toward Medium.

MATTAWAMKEAG LAKE

Context and Character. Mattawamkeag Lake (3,330 acres) is the largest waterbody within eight miles of the wind project. The majority of the lake is located in Island Falls and therefore under the jurisdiction of MDEP, while the eastern third is in T4 R3 WELS and falls within LURC jurisdiction.

Mattawamkeag Lake is surrounded by low rolling hills that define the perimeter of the lake. The landforms rise up to 200 to 500 feet above the surface of the water and are effective in limiting turbine visibility throughout most of the lake. There are no named mountains or other distinctive focal points

[16] Palmer, J.F. 1999. Recreation participation and scenic value assessments of clearcuts. In *Proceedings of the 1998 Northeastern Recreation Research Symposium*, edited by H.G. Vogelsong. Gen. Tech. Rep. NE-255. Radnor, PA: USDA, Forest Service, Northeastern Forest Research Station. pp. 199-203.

[17] In a recent survey of recreational users of Donnell Pond for the Bull Hill Wind Project, 78% of the respondents indicated that the addition of wind turbines to the view would not affect their use of Donnell Pond for water activities such as boating, canoeing, kayaking, swimming, or fishing. In addition, 4% of the respondents indicated that they would more likely return to Donnell Pond for water activities, while 3% said that they would be less likely to return for water activities. The addition of the Project to the view dropped the respondents' rating of the scenic value of the view from Donnell Pond from 5.50 to 4.62 on a 7-point scale (where 7 is the highest scenic quality). The majority of the respondents (51%) did not change their ratings of the scenic value of the pond once they were shown a photosimulation of the pond with the Project in place.

[18] Bull Hill Wind Power Project Intercepts Research Report, Market Decision, October, 2010.

within its immediate viewshed. The landforms do not have the same degree of irregularity as the hills that surround Pleasant Lake. From many vantage points the horizon appears almost level with relatively slight changes in grade.

The lake is divided into Upper Mattawamkeag Lake and Mattawamkeag Lake by The Thorofare, a meandering stream approximately one mile in length. Development on Upper Mattawamkeag Lake is concentrated on the northeast side, with approximately 4 dozen camps along 3± miles of shoreline. Development on the remainder of Mattawamkeag Lake (east of The Thorofare) is much more dispersed and limited to scattered pockets and isolated camps on a much larger water body.

Significance. The Maine Wildlands Lakes Assessment found that the lake is accessible and undeveloped and gave it a resource rating of 'significant' for its scenic resources. The Assessment assigned Mattawamkeag Lake to Resource Class 1A (a lake with multiple outstanding natural values, in this case wildlife and shore character).

Mattawamkeag Lake was also included in the findings of Maine's Finest Lakes, The Results of the Maine Lakes Study. This document contains the following descriptions.

> ***Significance**: Mattawamkeag Lake contains outstanding wildlife and shore character resources as well as significant fisheries, scenic, cultural, and geologic resources. An active bald eagle nest is associated with this lake.*
>
> ***General Description**: This relatively undeveloped lake is located near the Town of Island Falls accessible from Route 2. The lake is largely surrounded by bogs and marshlands, and is impounded by a dam. There is a public boat landing near the highway, and less than 25 dwellings along the lake as of 1988. Maximum and average depths are 47 feet and 17 feet respectively.*
>
> ***Scenic Resources**: Mattawamkeag is considered a significant scenic resource, with views of surrounding mountains, islands, boulders, beaches, and a very interesting shoreline configuration. Shoreline development detracts from the overall visual quality.*
>
> ***Shore Character**: Numerous and dominant rock ledges, scattered beaches, areas of open shoreline, and an overall diversity of features make the shore character outstanding.*[19]

Prior to the publication of the Maine Wildlands Lakes Assessment and Maine's Finest Lakes, the State Planning Office issued the Scenic Lakes Character Evaluation in Maine's Unorganized Towns, which evaluated the scenic characteristics of all the lakes and ponds (with a surface area greater than 10 acres) in LURC territory according to six criteria. A point system was developed to assign a rating to each of the factors, depending upon their presence in the landscape. Mattawamkeag Lake achieved a score of 30, which is in the middle of the range for the 'Significant' rating. The following table provides a short description of each of the factors that were used and summarizes the findings for Mattawamkeag Lake.[20]

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[19] Maine State Planning Office. Maine's Finest Lakes, The Results of the Maine Lakes Study. Maine Critical Areas Program, Planning Report No. 90. October 1989.

[20] Maine State Planning Office. Scenic Lakes Character Evaluation in Maine's Unorganized Towns. December, 1986. The ratings in the chart – from None to High – are taken from the SPO document. Individual scores for most categories are assumed.

FACTOR	DEFINITION	RATING	MAX. PTS	SCORE
Relief	Complexity of relief *Dramatic relief*	Low	30	0
Physical Features	Cliffs, vertical ledges, slab ledges, rockslides, boulders, islands, beaches.	Medium	25	15
Shoreline Configuration	Relative complexity of the shoreline.	High	15	15
Vegetation Diversity	Four possible types were identified: mixed hardwood/softwoods; softwoods; marsh; super-story trees.	Low	15	5
Special Features	Water clarity Opportunities for wildlife viewing	None	15	0
Inharmonious *Development*	Residential development, visible *roads, powerlines, etc.*	Medium	-20	-5
TOTAL				**30**

LURC's Comprehensive Land Use Plan includes Mattawamkeag Lake in Management Class 7. (See description of Class 7 under Pleasant Lake above.)

Maine Department of Inland Fisheries and Wildlife surveyed the lake in 2004 and issued the following description:

> *Mattawamkeag Lake consists of two large basins (Upper and Lower) connected by a navigable thorofare. Because both basins have similar characteristics and boats can easily pass through the thorofare, the lake is managed as one unit.*
>
> *For many years there was a dam on the outlet that raised the water level several feet in the lake and eroded the shoreline. This dam eventually deteriorated and allowed the water level to drop to historical levels that exposed the existing very rocky shoreline. The many rocky reefs and shoals throughout the lake used to be islands or points of land before the soil was eroded away by high water. There are a few sandy beaches and extensive wetlands areas around the lake and in the inlet. There are areas of camp development in the upper basin and except for a few scattered camps the lower basin is mostly undeveloped.*
>
> *Mattawamkeag Lake provides ideal habitat for warm water game fishes. The lake is predominantly shallow and warm with an excellent food supply and good areas for natural reproduction for warm water fish species. Both the upper and lower basins contain small areas of deep, cold water, providing refuge for salmon, lake whitefish, and smelt during warm summer months. A deficiency of dissolved oxygen below 20 feet by late summer restricts the use of the deep areas by coldwater fish species.*
>
> *There is a very good boat launching site in the upper basin of the lake.* [21]

In 2003 the Maine Bureau of Parks and Lands, with support from the Land for Maine's Future Program and the Forest Legacy Program (a federal land conservation program focused on maintaining the nation's multiple-use forest lands) acquired an easement and two fee parcels that protected 3,026 acres of land around the southern end of Mattawamkeag Lake. The easement will allow sustainable forestry practices while guaranteeing continued access for boating, swimming, fishing, and camping. Included in the protected lands are Big Island, 11.5 miles of frontage on Mattawamkeag Lake, the upper reaches of the West Branch of the Mattawamkeag River, and the northern end of Mud Lake. This land also includes Bible Point State Historic Site on the West Branch,

[21] Maine Department of Inland Fisheries and Wildlife. Mattawamkeag Lake, Island Falls, Aroostook Co. Surveyed August, 1949, Revised 1953, 1956, 1975, 2004.

a place often visited by Theodore Roosevelt starting in 1878. The Bureau purchased in fee 64 acres on Long Point to enhance opportunities for lakefront camping and 126-acre Big Island, which contains significant old growth forest.

Public Uses. Recreational use of the lake includes boating, canoeing, fishing, hunting, ice fishing, camping, swimming, snowmobiling, and seasonal camps. Boat access to the lake is provided at a boat launch at the northwestern end of the lake and at an informal put-in on the northeast side at Sand Cove.

While there is no record of public use levels, the LMF website notes: "From Mattawamkeag Lake, paddlers can travel up to 90 miles along a recognized backcountry canoe route that traces the West Branch of the Mattawamkeag River. A popular hiking trail near the mouth of Mattawamkeag Lake leads to Bible Point–a location visited and made famous by Theodore Roosevelt. The Lake and surrounding woodlands are used by area residents year-round, with hunting in the fall, snowmobiling in winter, and fishing throughout the year for landlocked salmon, brook trout and smelt."[22] The Forest Legacy program's description of the Mattawamkeag Lake acquisition notes "The area is popular with anglers, campers, boaters, snowmobilers, and hunters. It includes the initial section of an extended backcountry canoe route down the West Branch of the Mattawamkeag River."[23]

The AMC River Guide describes a 24.25-mile canoe route on the West Branch of the Mattawamkeag River, starting in Island Falls and extending to Haynesville. The Guide does not offer any additional information on public use, other than to note the presence of a small Maine Forest Service campsite at the southern end of Mattawamkeag Lake.[24]

Viewer Expectations. People who use Mattawamkeag Lake are expected to have moderate to high expectations of scenic quality. Their expectation will be tempered by the waterfront cottages, boat launch, and other changes that are visible from the lake, especially on Upper Mattawamkeag Lake. . As in the case of Pleasant Lake, there is some evidence that scenic quality may be less important to people engaged in fishing or motor boating as compared to those who hike or engage in nature study.[25]

Project Impact. The majority of the visual impact will be felt on Mattawamkeag Lake, where turbines will be visible over approximately 80% of the lake surface. On Upper Mattawamkeag Lake up to 10 turbines will be visible at the southeastern end (approximately 10% of the lake surface).

Portions of approximately 16 of the turbines sited in previously permitted locations will be visible from Mattawamkeag Lake. Of the 29 new turbines that are being proposed, all are within 8 miles of the northern edge of the lake; 15± are within 8 miles of the southern end of the lake. The ten closest new turbines would be prominently visible to the northeast at distances of 2.7 to 4.1 miles. The upper portions of some of the other 19 proposed turbines may be slightly visible above the treeline over portions of the lake. The majority of the turbines would be visible above the horizon.

In the original application a total of 16 turbines – at distances of 4.9 to 5.7 miles – were visible from Big Island, of which 6 were just the blades seen above the trees. (See Visual Simulation from Mattawamkeag Lake in the March 11, 2009 application.) With this amendment, portions of approximately 30 turbines will be visible from the northeastern shore of Big Island at distance 3.7 to 8.0 miles. Ten of those will be just blades.

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[22] Land for Maine's Future Website, Mattawamkeag Lake, www9.informe.org/lmf/projects/project_detail.php?project=1590

[23] Mattawamkeag Lake, Forest Legacy Tract, Maine. www.na.fs.fed.us/legacy/legacy_places/me/pdfs/me_05_2003s.pdf

[24] *AMC River Guide*. Appalachian Mountain Club, Boston. 1986.

[25] Palmer, J.F. 1999. Recreation participation and scenic value assessments of clearcuts. In *Proceedings of the 1998 Northeastern Recreation Research Symposium*, edited by H.G. Vogelsong. Gen. Tech. Rep. NE-255. Radnor, PA: USDA, Forest Service, Northeastern Forest Research Station. pp. 199-203.

Within the lakefront that Bureau of Public Lands has a conservation easement, portions of 20 to 30 turbines will be visible from the southwestern sides of Greenlaw Cove at distances of 4.9 to 8.0 miles; a similar number will be visible from the northeast side of Long Point at distance of 4.1 to 8.0 miles.

A few small clusters of camps on the western shore of the lake will have views of the majority of the turbines. The 12± camps near Hook Point at the western end of Mattawamkeag Lake will see up to 30± turbines at distances of 4.3 to 8.0 miles. The 4± camps near Birch Point may see portions of 29± turbines at distances of 4.7 to 8.0 miles.

Bible Point State Historic Site is located in a wooded tract adjacent to the West Branch of the Mattawamkeag River and will not have any views of the Project.

The turbines will be visible from approximately 80% of Mattawamkeag Lake, but will generally appear to be relatively small to moderate-sized objects on the horizon. (See Photosimulation 5.) From Big Island the turbines will occupy a horizontal angle of approximately 54° to the north northeast. From Long Cove, they will be seen over a horizontal angle of approximately 39° to the north northeast. From the location of Photosimulation they will be seen over a horizontal angle of 14° to the northeast. Where the Project is visible, it will have a moderate to significant visual presence to a viewer facing in that direction. As illustrated on Figure 4C, the greatest number of turbines will be seen along the southwestern edge of Mattawamkeag Lake at distances of 5 to 8 miles.

Potential Effect on Public Use. The views of up to 30± turbines on the horizon at distances of over 2.7 to 8.0 miles will have a moderate to strong effect on the scenic character of Mattawamkeag Lake by introducing man-made elements in a largely natural landscape. The presence of the turbines will not affect the ability to fish, boat, or camp on or near the lake. The primary impact will be on those who visit the lake for its remote character. The visitor use survey that was conducted for First Wind's Bull Hill wind project found that the turbines on Donnell Pond would have no effect on respondents' likelihood of returning for water-related activities such as boating, canoeing, kayaking, swimming, or fishing. This may also be the case for Mattawamkeag Lake, which is approximately three times as large as Donnell Pond and has similar characteristics in terms of recreation opportunities, level of development, and remoteness.

The Project should have a much smaller effect on Upper Mattawamkeag Lake, where the Project will be visible from a much smaller portion of the water surface.

Overall Scenic Impact. The photosimulation and the viewshed maps indicate that the Project will have a negative effect on the scenic value of Mattawamkeag Lake, which is recognized for its scenic values and relatively remote location. From most of Mattawamkeag Lake the turbines will be visible over a significant portion (between 4% and 15%) of the horizon.

There are several moderating factors that affect the overall scenic impact. The distance of the Project from the lake will make the turbines appear as relatively small to medium-sized objects on the horizon. The pattern of low hills between the Project and the lake will provide intermittent screening so the entire Project will never be visible from any one point on the lake. Many of the users are engaged in activities where scenic quality may not be central to the experience (e.g., boating or fishing). Surveys that have been done in similar situations indicate that people will continue to return to a water body for these types of recreational pursuits even with turbines in view.

While there will be scenic impacts on Mattawamkeag Lake and Upper Mattawamkeag Lake, they will be within the range of impacts anticipated by the Maine Wind Power Law. The project should not have an unreasonable adverse effect on its scenic character or the uses related to the scenic character of the lake. The overall scenic impact is judged to be Medium, tending to High in portions of Mattawamkeag Lake. The scenic impact to Upper Mattawamkeag Lake is Minimal to Low.

E. Specified Scenic Rivers. There are no scenic rivers or streams identified as having unique or outstanding scenic attributes, as listed in the "Maine Rivers Study", within eight miles of the project.

F. Scenic viewpoints or specified trails. There are no scenic viewpoints located on state public reserved land within eight miles of the wind project. There are no trails exclusively for pedestrian use within eight miles of the proposed wind project.

G. Scenic turnouts. There are no scenic turnouts on any designated scenic highways constructed by the Department of Transportation within eight miles of the project. There is one scenic turnout overlooking Upper Mattawamkeag Lake on Route 2 in Island Falls where the tops of several turbines will be visible in the background (beyond four miles). However, this is not a designated scenic highway and not considered a scenic resource of state or national significance. Photosimulation 4 has been prepared to illustrate the visibility of the turbines from this viewpoint.

H. Scenic viewpoints located in the coastal area. Not Applicable.

6.3 Associated Facilities

The associated facilities will not have an unreasonable adverse effect on scenic character and existing uses and therefore are reviewed under the modified scenic impact standard applicable to wind generating facilities.

A. Generator Lead Line. The generator lead line, which has the greatest visibility and potential for unreasonable adverse effects, is the subject of a separate amendment application (*Visual Impact Assessment, Proposed 115 kV Generator Lead Line, Chester to Oakfield*). To be conservative the generator lead line has been evaluated pursuant to the traditional visual impact standards under the Site Law and NRPA. Based upon a review of the project, the proposed Maine GenLead 115 kV generator lead line between the Oakfield Wind Project Substation and the BHE Keene Road Substation will not unreasonably interfere with existing scenic and aesthetic uses of scenic resources within the viewshed and will not have an unreasonable adverse effect on the scenic character of the surrounding area.

B. Substation. Electricity generated by all of the turbines will be collected at a new substation located near the eastern end of South Oakfield Road in Oakfield. The substation will not be visible from any of the scenic areas of state or national significance. Likewise, its location in the working forest adjacent to an existing road used mainly for hauling timber will not have an unreasonable adverse effect on the scenic character of the surrounding area.

C. Operations and Maintenance Building. The O&M building will be located on Thompson Settlement Road at the intersection of the westerly project access road. The facility will consist of a one-story building that will serve as an office and warehouse, a parking area for up to ten vehicles, and an area for outside storage. The building will be painted a neutral color to minimize color contrast with the surrounding landscape. The location and design have been selected to minimize adverse effects on the scenic character of the surrounding area. The facility will not be visible from any of the scenic areas of state or national significance.

D. Access Roads. The majority of the roads used to access the turbine sites are existing logging roads which will be modified as necessary to accommodate the delivery and construction vehicles for the Project. Each wind turbine site will be linked by a 35 foot± wide gravel road designed to provide safe travel by the construction crane to the structures throughout construction. In some instances the topography will dictate a circuitous route to accommodate the engineering requirements of the installation equipment and minimize site disturbance. Where possible, existing logging roads will be upgraded to serve as ridgeline roads to minimize cutting and earthmoving.

The roads will be screened by existing vegetation in most locations and will not be highly visible from outside the immediate area. Because they are higher in elevation, the roads will not be visible from either Pleasant Lake or Mattawamkeag Lake, or the Oakfield Grange.

E. Meteorological Towers. Four permanent 80-meter (262 feet) towers will be constructed and remain for the life of the project. These towers will be lighted according to FAA requirements, and be of a guyed lattice construction, with a triangular cross section approximately 18 inches across. Their slim profile and light color will greatly reduce their visibility at distances greater than one mile.

F. Crane Pads and Crane Assembly Area. A cleared and level pad area up to two acres in size will be required at the base of each turbine for staging, crane movement, and turbine installation. Additional clearing may be needed in some areas to account for cut/fill slopes. Following construction the majority of crane assembly and turbine pad areas will be allowed to naturally revegetate. The majority of the crane pads and assembly areas will be screened by existing vegetation that surrounds the turbine base and will minimize visibility outside the immediate area.

7.0 SUMMARY

The Maine Wind Power Law established several criteria to determine whether expedited wind energy development significantly compromises views from a scenic resource of state or national significance such that the development has an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the resource. The summary presented in Table 1 Summary of Evaluation Criteria is based upon the information provided in the Visual Impact Assessment and other information on existing use patterns.[26]

The first five criteria evaluate the 8-mile study area, the immediate project area, the quality of the resource, existing use patterns and viewer expectations, and the purpose of the project:

- **A** **Resource Significance**: This criterion reflects the designation of scenic significance by the State or Federal Government. All the resources on the table have been identified as Scenic Areas of State or National Significance. The light gray are significant resources; medium gray are outstanding resources.
- **B** **Character of Surrounding Area**: This criterion evaluates the setting of the resource and its surrounding area. In most cases the surroundings have been noted as medium (generally of a natural condition for lakes and mountains, and of a typical Maine village condition for historic resources).
- **C** **Viewer Expectation**: This criterion takes into account the designation of scenic quality by state agencies, the intrinsic character of the resource, the presence of cultural modifications, and other factors. The darker shades indicate higher viewer expectations.
- **D** **Purpose and Context**: This criterion is a reflection of how the Project contributes toward the state's goals for energy as per the Wind Energy Act. A light gray color was assigned, since the project will make a significant contribution toward achieving the State's goals.
- **E.1** **Extent, nature & duration of uses**: This criterion looks at the number of users, the potential for access (in the case of lakes and ponds), the type and extent of facilities, typical length of stay, and information from the intercept survey.

The last two criteria evaluate the possible effect that the Project may have on the use of the resource and the likely visual impacts.

- **E.2** **Effect on continued use and enjoyment**: A light color indicates that the Project is not expected to have a major impact on people's use or enjoyment. If the Project will not be visible from the resource, the matrix is left blank (no effect).
- **F** **Scope and scale of project views**: This criterion looks at the number of turbines visible, their position in the landscape, the angle of view that they are seen over, and the distance from the observer. Only turbines within eight miles of the resource are considered.

[26] This section and the Summary of Evaluation Criteria is based upon the Review of the Spruce Mountain Wind Project Visual Assessment, prepared for the Maine Department of Environmental Protection by James F. Palmer, June 11, 2010.

Table 1 Summary of Evaluation Criteria

Scenic Resource of State or National Significance within 8-mile Study Area	Scenic Impact Evaluation Criteria							Overall Scenic Impact
	A: Resource Significance	B. Character of Surrounding Area	C: Viewer Expectation	D: Purpose and Context	E.1: Extent, Nature, Duration of Use	E.2: Continued Use and Enjoyment	F: Scope and Scale of Project Views	
6B Historic Sites								
William Sewall House, Main Street, Island Falls								None
Island Falls Opera House, Patten Road and Sewall Street, Island Falls								None
Oakfield Station, Station Street, Oakfield								None
Oakfield Grange No. 414, Ridge Road, Oakfield								Low
6D. Great Ponds								
Pleasant Lake								Low-Medium
Mattawamkeag Lake (includes Upper Mattawamkeag Lake)								Medium-High

8.0 CONCLUSION

There are three scenic resources of state or national significance within the viewshed of the project: the eastern portion of Pleasant Lake in T4 R3 WELS; Mattawamkeag Lake in T4 R3 WELS and Island Falls; and the Oakfield Grange in Oakfield. The visual impact assessment examined the criteria established by the Maine Wind Power Law: i.e., the context, significance, existing public use, viewer expectations, project impact, and the potential effect on public use for each of the scenic resources of state or national significance. This information was used to make a determination of whether the project would significantly compromise views from these resources such that it would have an unreasonable adverse effect on its scenic character or the existing uses related to its scenic character.

While a moderate to strong visual impact on portions of the lakes is anticipated, the Oakfield Wind Project Amendment should not have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

- The Project will be visible from the eastern portion of Pleasant Lake, which is a significant scenic resource. The amended layout will result in more turbines visible from the lake; however, the closest turbines will be generally more screened from view by the surrounding hills. The overall scenic impact for Pleasant Lake is rated Low tending toward Medium.

- The amended Project will be more visible from the majority of Mattawamkeag Lake than the original layout. Mattawamkeag Lake (which includes Upper Mattawamkeag Lake) is a significant scenic resource with recent conservation easements and land purchases by the Bureau of Parks and Lands. The turbines will be visible from many parts of the lake, but will generally appear to be small to moderate-scaled objects on the horizon. The overall scenic impact is judged to be Medium, tending to High in portions of Mattawamkeag Lake. The scenic impact to Upper Mattawamkeag Lake is judged to be Minimal to Low.

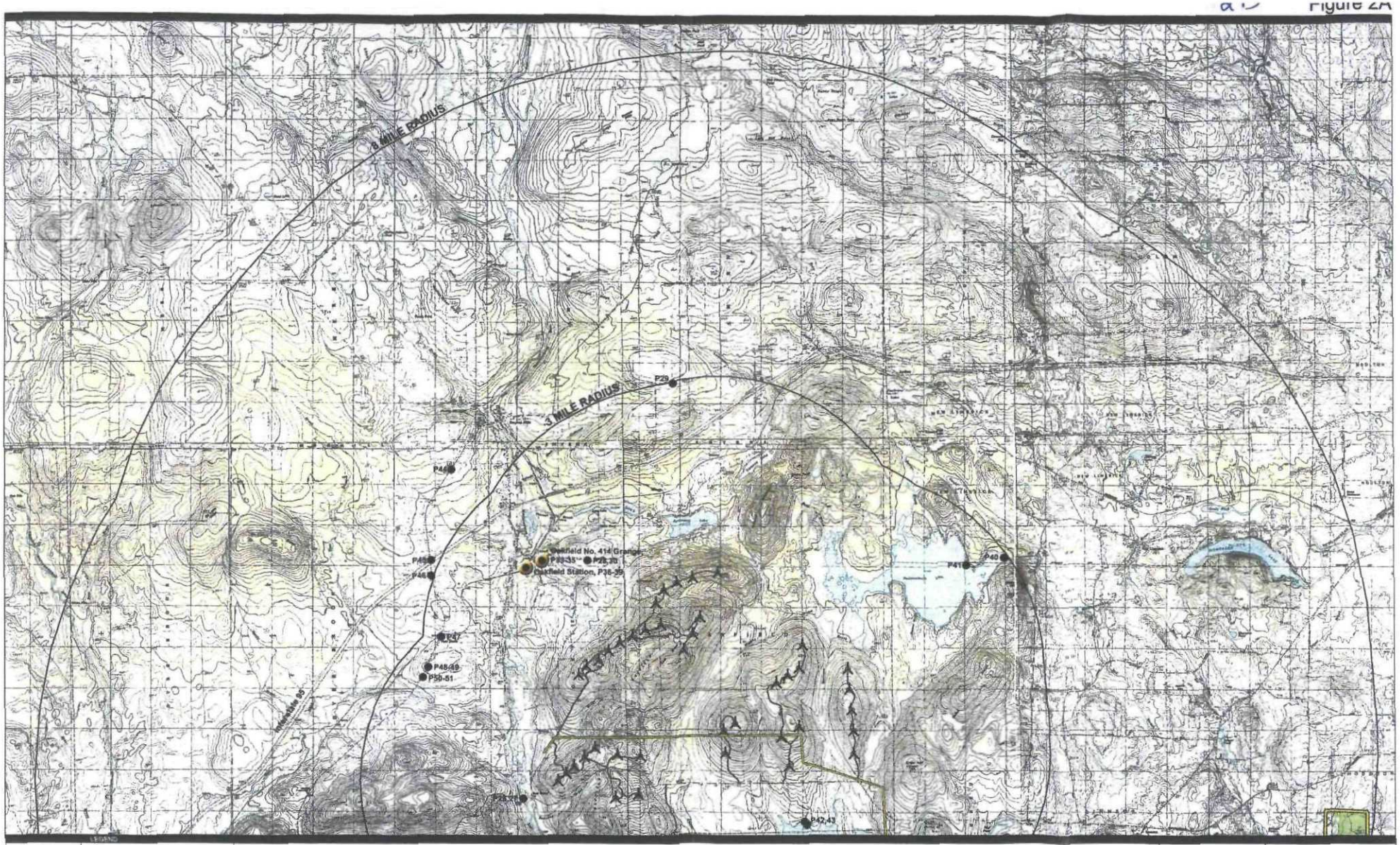
- The Project will be minimally visible from one structure on the National Register of Historic Places. However, since it is privately owned, it may not qualify as a scenic area of state or national significance.

- Within the eight-mile study area, the Project will not be visible from any national natural landmarks, federally designated wilderness areas, National Parks, developed State Parks, scenic river segments, or MDOT scenic turnouts.

- Throughout the majority of this area, views of the wind turbines ("generating facilities") are blocked by topography and roadside vegetation.

- The associated facilities for the Project will have no impact on views from scenic resources of state or national significance. The associated facilities are located in actively managed timberland that is generally out of view from the surrounding area. The associated facilities will not be of a location, character, or size to cause an unreasonable adverse visual affect on the scenic character of the study area.

- The MDEP determined the scenic impact of the original layout was acceptable under the criteria established by the Maine Wind Energy Act. Although the amendment results in greater impacts to each of the scenic areas of state or national significance, the impacts are incremental and are generally not significantly greater in terms of the scale and magnitude of Project visibility.



OAKFIELD WIND PROJECT AMENDMENT

Study Area Map

tjd&a

Terrence J. DeWan & Associates
Landscape Architects & Planners

Evergreen Wind Power II, LLC

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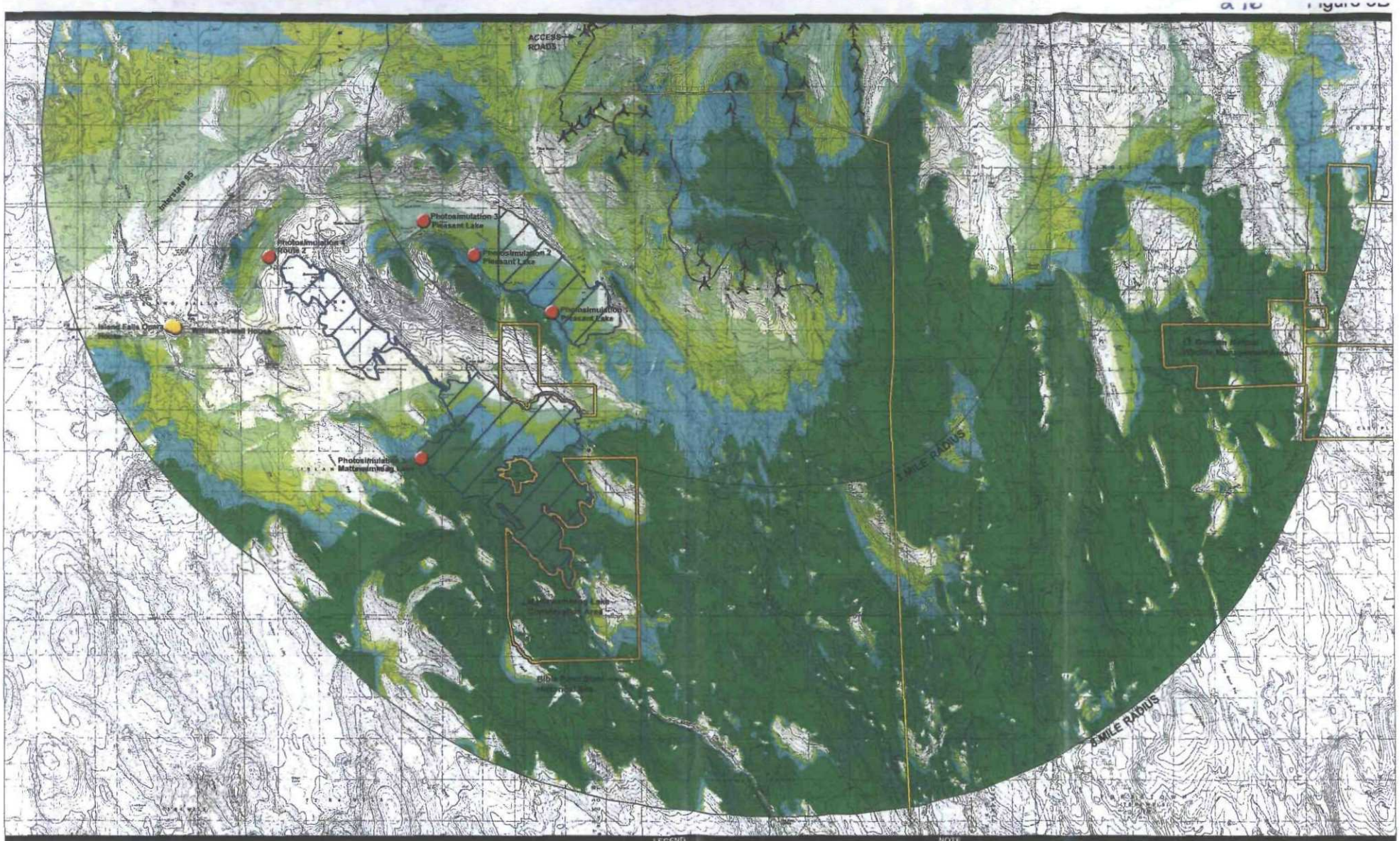

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Tarsoff J. DeMian & Associates
Landscape Architects & Planners

OAKFIELD WIND PROJECT AMENDMENT

Topographic Viewshed Map

LEGEND

- PROPOSED TURBINES
- PROPOSED ACCESS ROADS
- PROPOSED GENERATOR LEAD LINE
- SCENIC POND/LAKE
- CONSERVATION LAND AREAS FROM ME DGIS
- PHOTOSIMULATION LOCATIONS
- STRUCTURES ON NATIONAL REGISTER

- 1-10 Visible Turbines
- 10-19 Visible Turbines
- 19-29 Visible Turbines
- 29-38 Visible Turbines
- 38-50 Visible Turbines

NOTE

This viewshed map does not account for the screening effects of the existing vegetation, buildings, or other structures that may screen views of the Project from some roads and population centers and scenic resources of state or national significance.

Viewshed mapping is a preliminary means of visual analysis. While beneficial for preliminary orientation and investigation, viewshed maps are not a definitive indication of visibility. Potential visibility was confirmed through cross sectional analysis, field investigation, and other visualization techniques.

NORTH

1 MILE

Figure 3C

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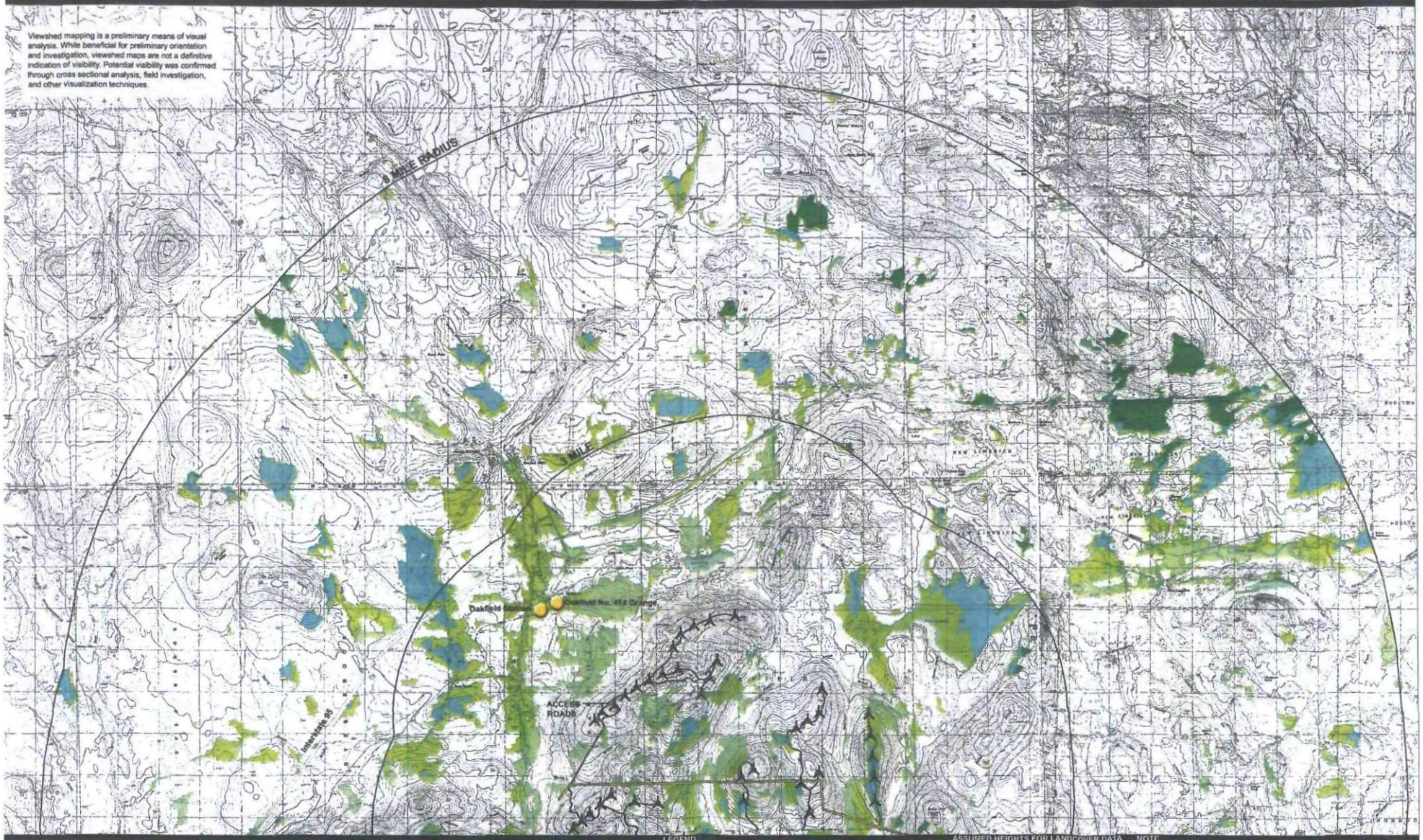
OAKFIELD WIND PROJECT AMENDMENT

Topographic Viewshed Map

Pleasant Lake and Mattawamkeag Lake



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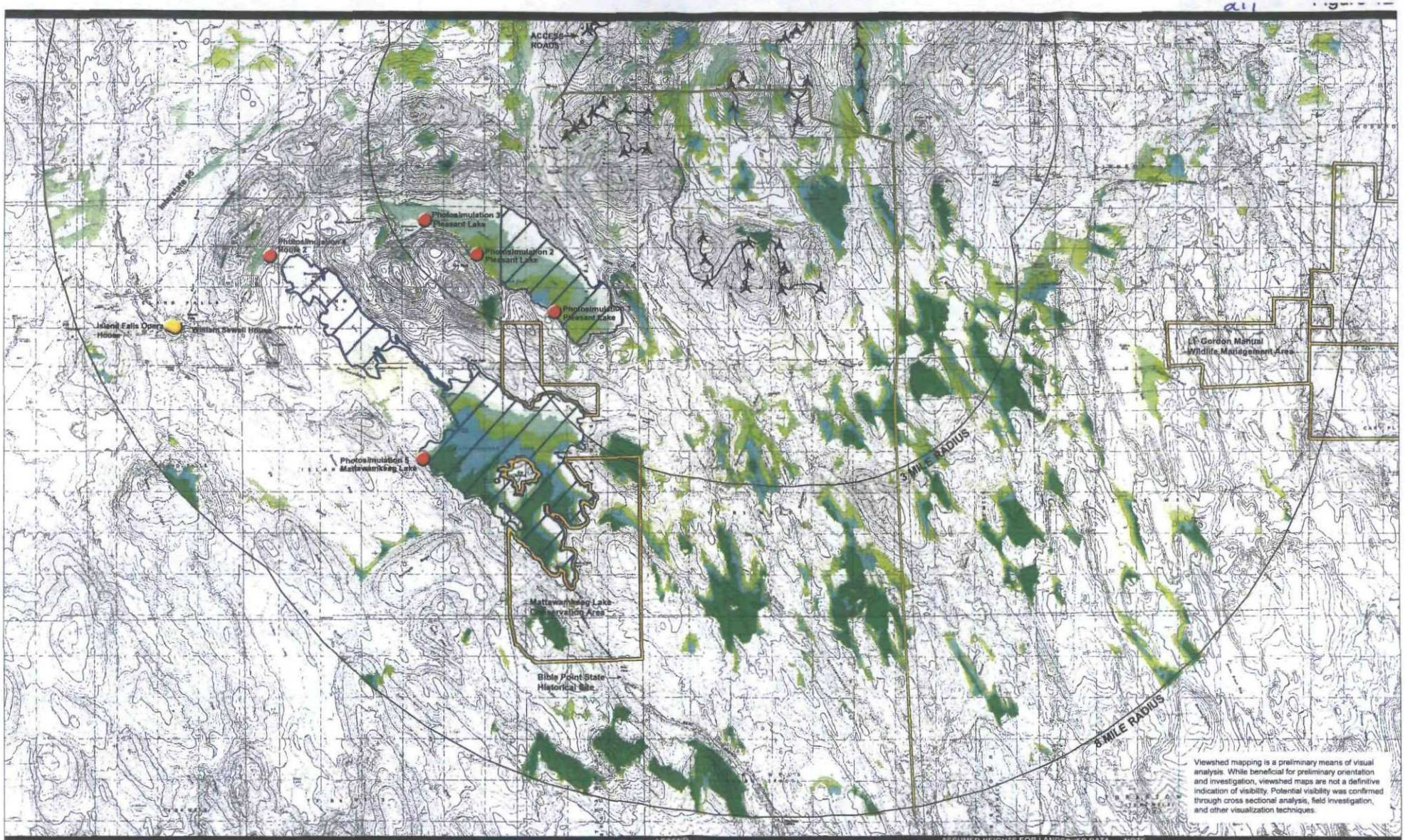
Terrence J. DeWan & Associates
Landscape Architects & Planners

OAKFIELD WIND PROJECT AMENDMENT

Topographic and Landcover Viewshed Map for Blade Tip



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Landscape Architects & Planners

OAKFIELD WIND PROJECT AMENDMENT

Topographic and Landcover Viewshed Map for Blade Tip

LEGEND

- PROPOSED TURBINES
- PROPOSED ACCESS ROADS
- PROPOSED GENERATOR LEAD LINE
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- STRUCTURES ON NATIONAL REGISTER

- 1-10 Visible Turbines
- 10-19 Visible Turbines
- 19-29 Visible Turbines
- 29-38 Visible Turbines
- 38-50 Visible Turbines

ASSUMED HEIGHTS FOR LANDCOVER DATA

Deciduous Forest - 40'
Evergreen Forest - 40'
Mixed Forest - 40'
Wetland Forest - 0'
Light Partial Cut Forest - 0'
Heavy Partial Cut Forest - 0'
Regenerated Forest - 0'

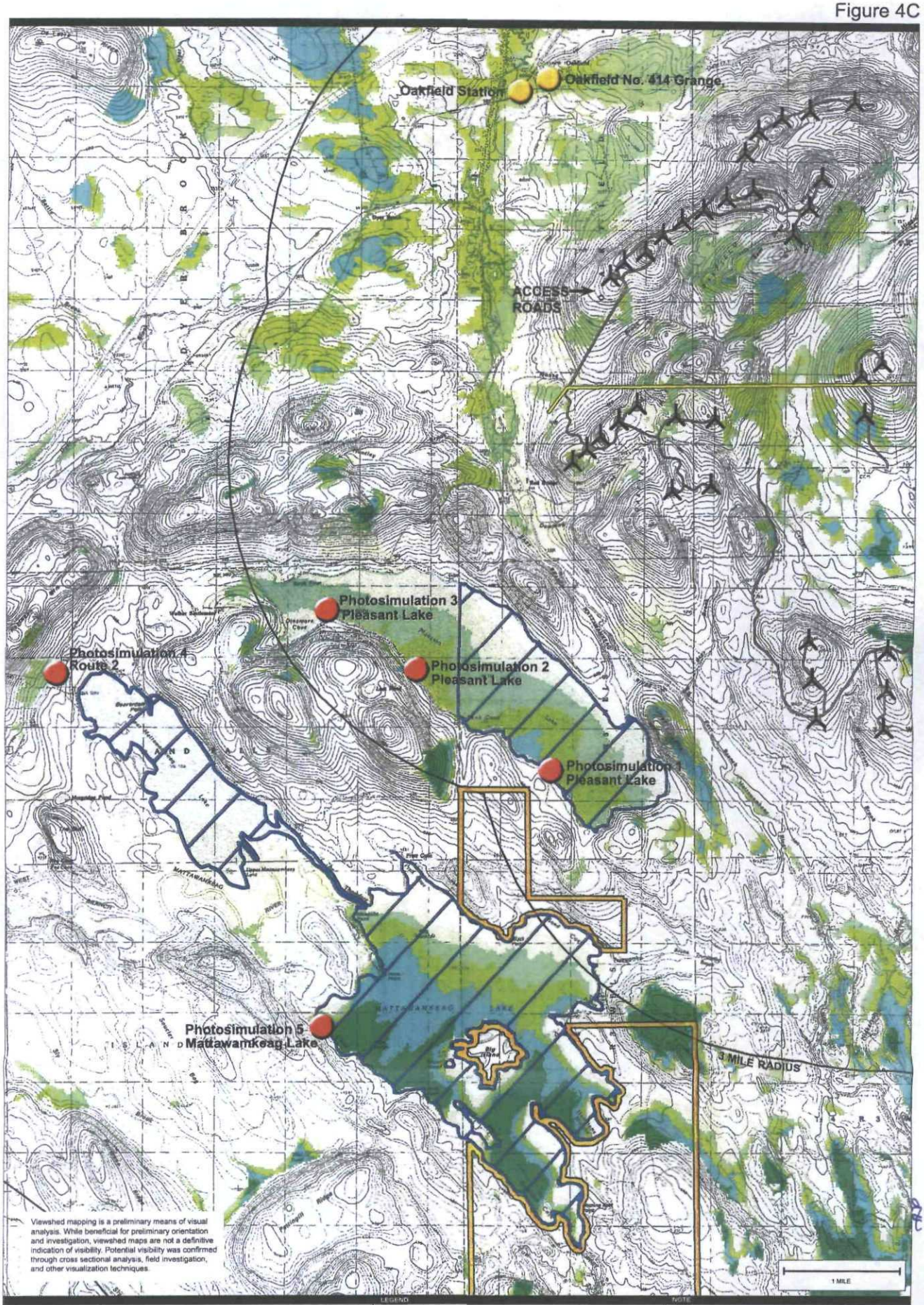
NOTE

This viewshed map accounts for the potential screening effects of existing vegetation that may screen views of the Project from some roads, population centers and scenic resources of state or national significance.

NORTH

1 MILE

Figure 4C



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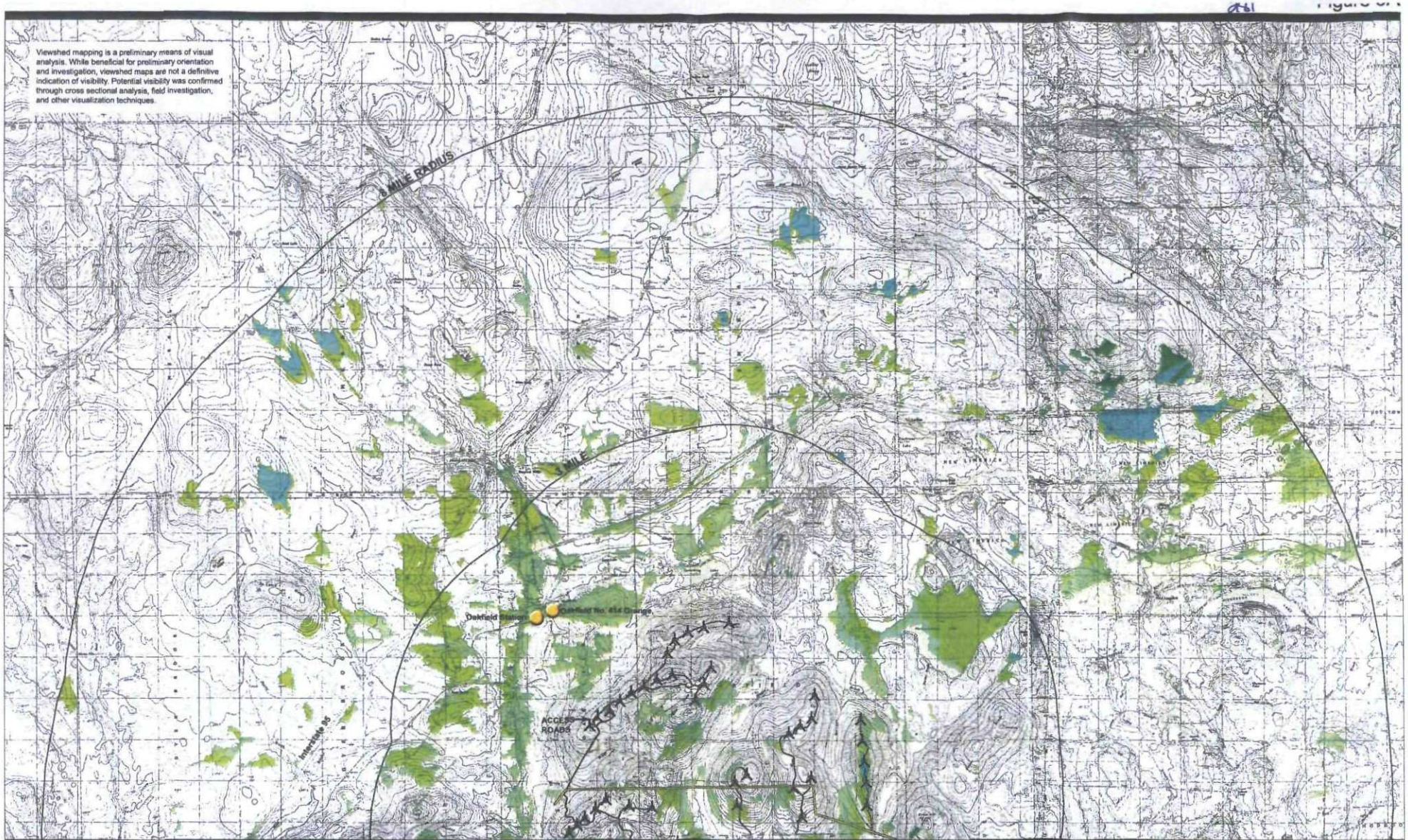
OAKFIELD WIND PROJECT AMENDMENT
Topographic and Landcover Viewshed Map for Blade Tip

Pleasant Lake and Mattawamkeag Lake



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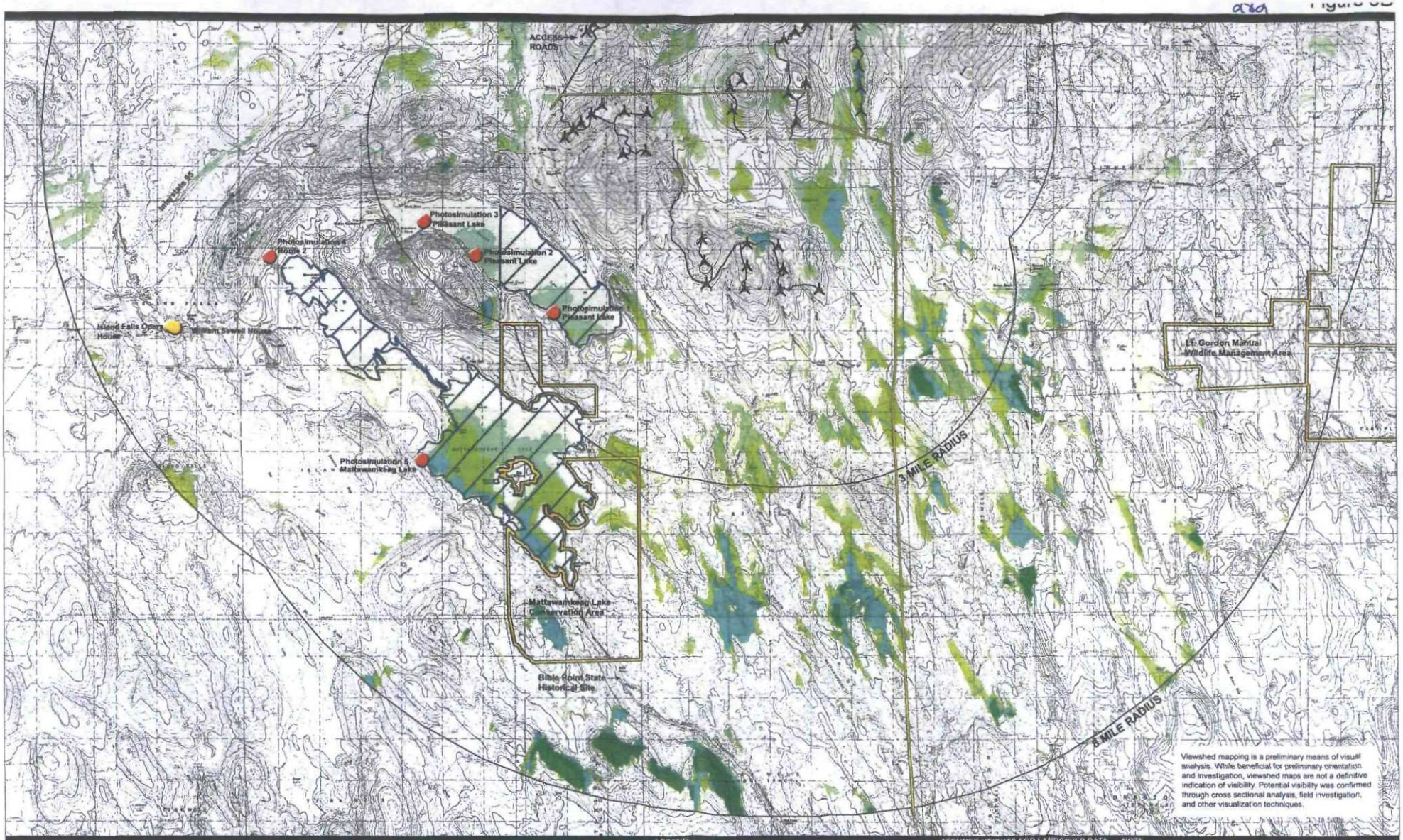
Landscape Architects & Planners

OAKFIELD WIND PROJECT AMENDMENT

Topographic and Landcover Viewshed Map for Turbine Hub



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Landscape Architects & Planners

OAKFIELD WIND PROJECT AMENDMENT

Topographic and Landcover Viewshed Map for Turbine Hub

LEGEND

- PROPOSED TURBINES
- PROPOSED ACCESS ROADS
- PROPOSED GENERATOR LEAD LINE
- SCENIC POND/LAKE
- CONSERVATION LAND AREAS FROM ME OGS
- PHOTOSIMULATION LOCATIONS
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- 19-29 Visible Turbines
- 29-38 Visible Turbines
- 38-50 Visible Turbines

ASSUMED HEIGHTS FOR LANDCOVER DATA

Deciduous Forest - 40'
Evergreen Forest - 40'
Mixed Forest - 40'
Wetland Forest - 0'
Light Partial Cut Forest - 0'
Heavy Partial Cut Forest - 0'
Regenerated Forest - 0'

NOTE

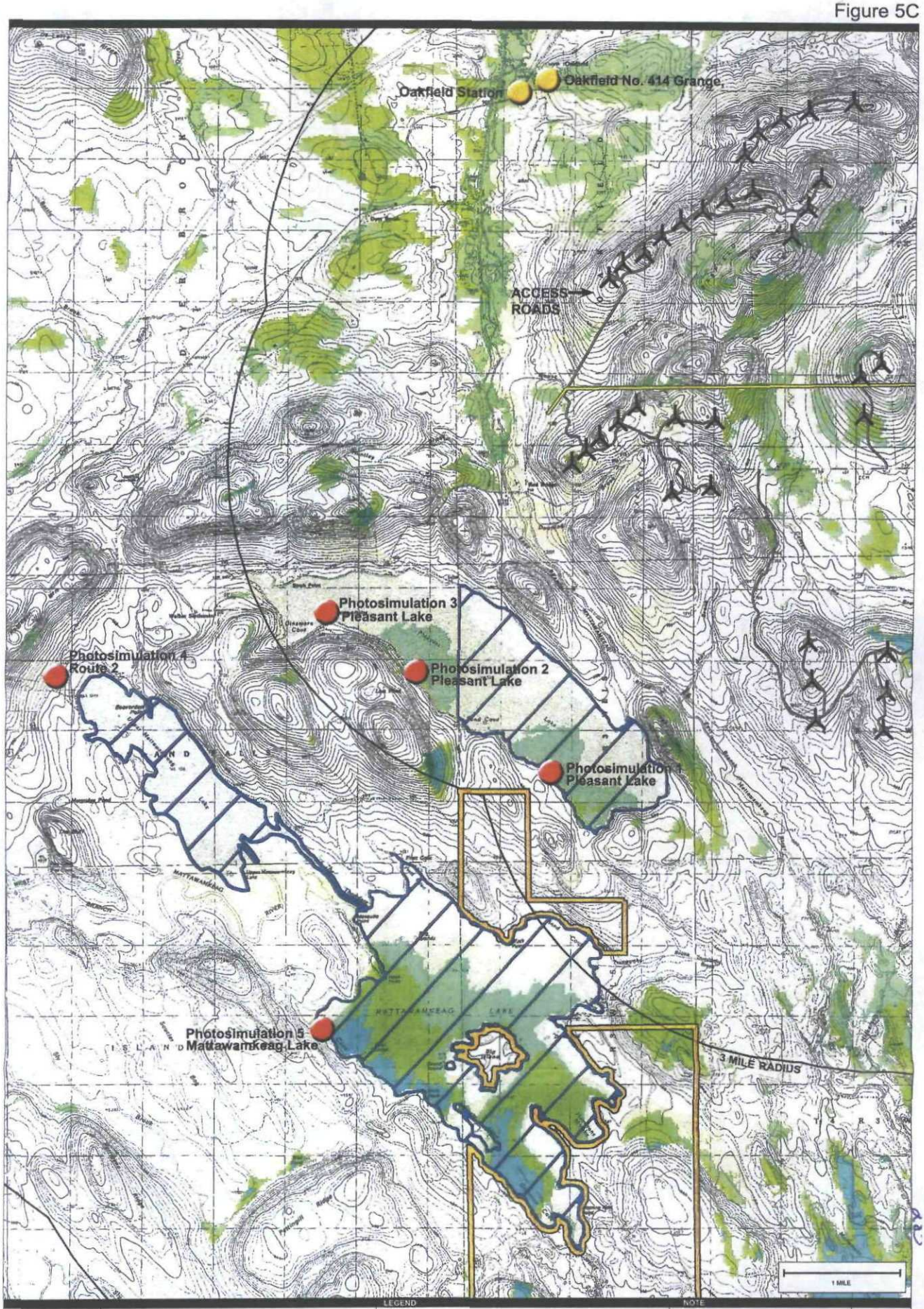
This viewshed map accounts for the potential screening effects of existing vegetation that may screen views of the Project from some roads, population centers and scenic resources of state or national significance.

Turbine hub height is 84 meters, 275 feet.

NORTH

1 MILE

Figure 5C



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OAKFIELD WIND PROJECT AMENDMENT
Topographic and Landcover Viewshed Map for Turbine Hub

Pleasant Lake and Mattawamkeag Lake

P1: Waterfront development on the western end of Pleasant Lake in Island Falls. Up to 15 turbines may be visible to the camps on the opposite (northern) shoreline. The western portion of Pleasant Lake is not a scenic resource of state or national significance.

P2: Year-round leased cottages at Birch Point on the western end of Pleasant Lake in Island Falls. The cabins are oriented to the south and generally will not have a view of the turbines. There will be views of the 10 turbines in T4R3 WELS to the east from the shoreline in front of the cabins at distances of 4.6 to 6.5 miles.

P3: View looking east from the boat launch at the western end of Pleasant Lake. A few turbines may be visible on the horizon at 3.9 miles.

P4: The gravel parking lot for the state boat launch can accommodate up to 20 cars. Turbines will not be visible from the parking lot.

P5: Boat launch and float at the Pleasant Lake facility.

P6: View looking west from the boat launch.

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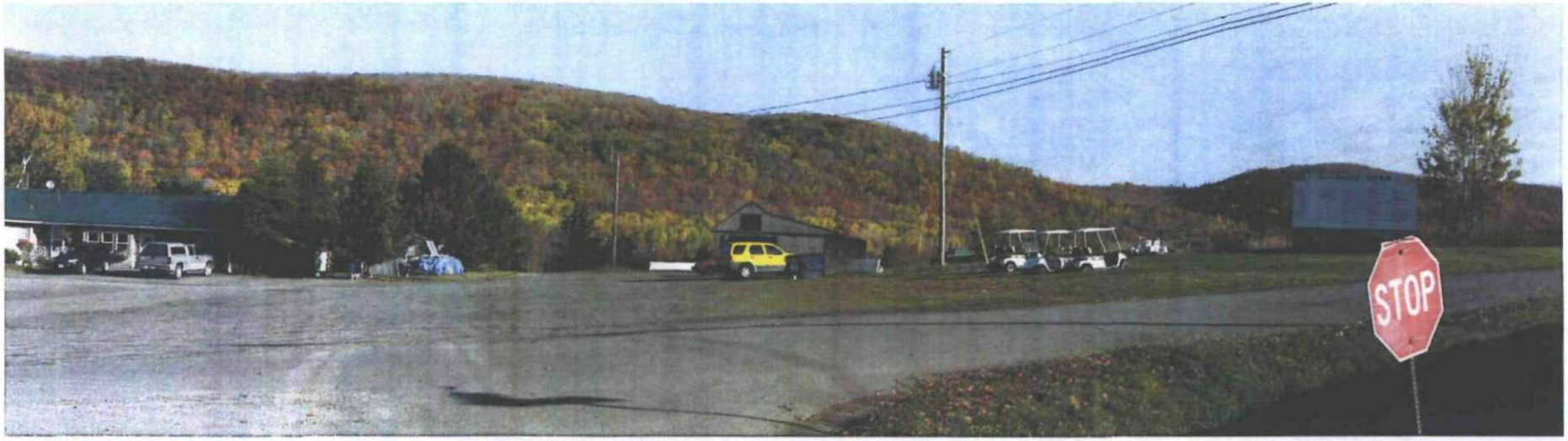
P7: Panoramic view looking northwest-northeast from developed shoreline at Whitney Point on Pleasant Lake in Island Falls. Turbines will not be visible in this section of the view.

P8: Continuation of the panoramic view from Whitney Point. Portions of 4 turbines would be visible in the valley between the low hills in the middle of the photo. From the lake at this location approximately 12 turbines will be visible to the northeast at a distance of 3.0 +/- miles to the closest turbine.

2886

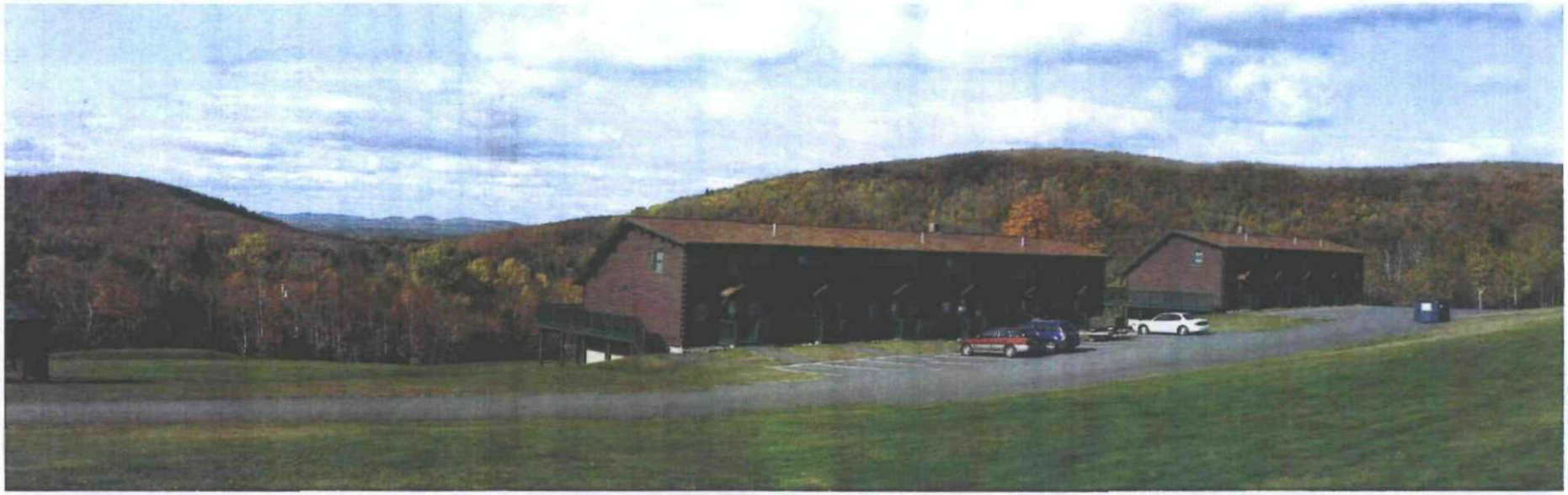
P9: Va Jo Wa Golf Course, on the western end of Pleasant Lake, is an 18-hole public course in Island Falls. View is near the clubhouse, looking west toward May Mountain.



P10: Panoramic view over the Va Jo Wa clubhouse, looking north. Approximately 9 turbines will be visible from this portion of the golf course, 6 in the valley between hills to left of billboard in photo and 3 to the right of the tree on right in photo.

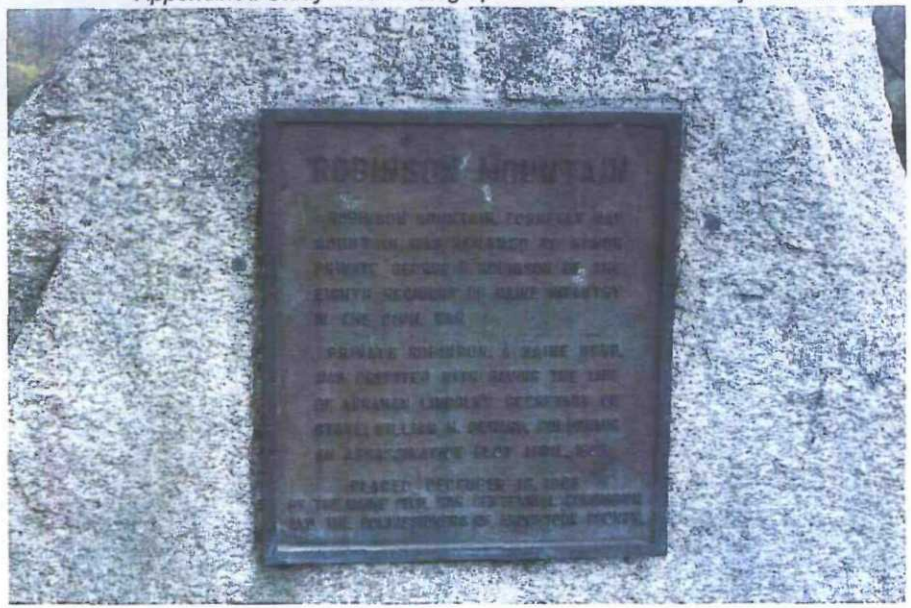
L&E

P11: Westerly view from condominiums at Vacationland Estates Resort in Island Falls.



P12: Continuation of panoramic view from Vacationland Estates Resort. Views of westerly mountains (Robinson (May) Mountain and Mount Katahdin) will not be affected by the turbines.

P13: View looking north on Route 2 in Island Falls. Signed scenic overlook is located on the north (far) side of the farm buildings.



P14: Interpretive sign mounted on a boulder at the scenic overlook tells the story of Robinson (May) Mountain, located to the west.

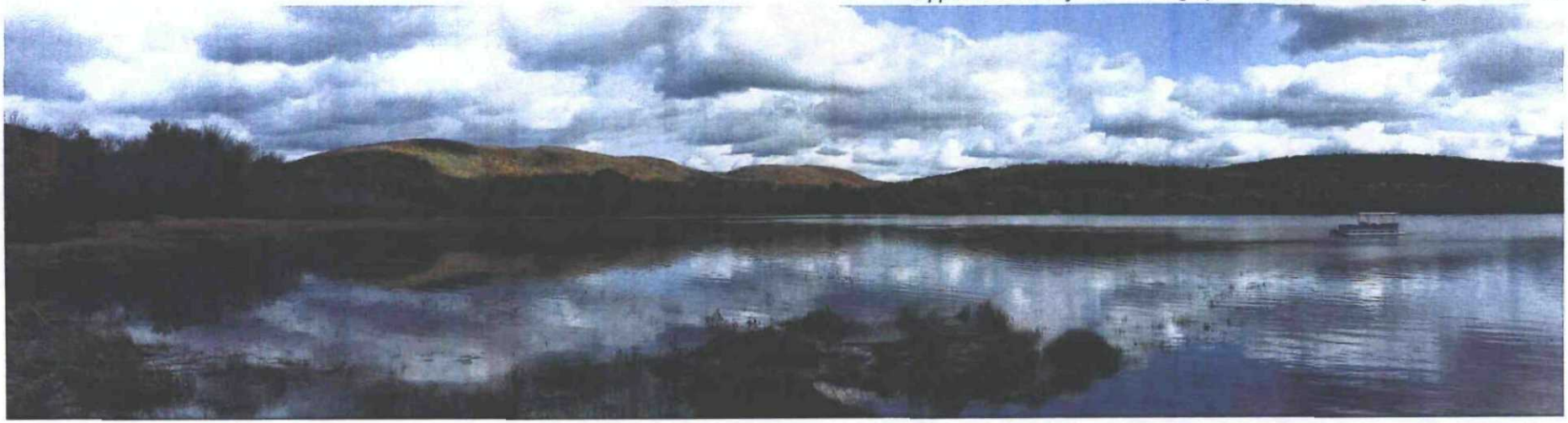
P15: View looking south on Route 2 at the scenic overlook. Route 2 is not a designated Scenic Byway; the overlook is not a scenic resource of state or national significance.

P16: View looking north from Route 2 at the scenic overlook. See Photosimulation 4 for view from scenic overlook looking towards Mattawamkeag Lake.

P17: Panoramic view looking north-northeast from the Route 2 scenic overlook in Island Falls below Robinson (May) Mountain. Portions of 9 turbines located in previously permitted locations will be visible in the middle of the scene at a distance of 4.8 to 6.1 miles. See Photosimulation 4 from scenic overlook in Appendix B.

P18: Continuation of the view from the Route 2 scenic overlook, looking east-southeast toward Mattawamkeag Lake.

290



P19: Panoramic view looking northeast from the boat landing at western end of Mattawamkeag Lake in Island Falls. No turbines will be visible from the boat landing nor the majority of Upper Mattawamkeag Lake.

P20: Continuation of panoramic view, looking east - southeast from boat landing at western end of Mattawamkeag Lake. No turbines will be visible in this direction.

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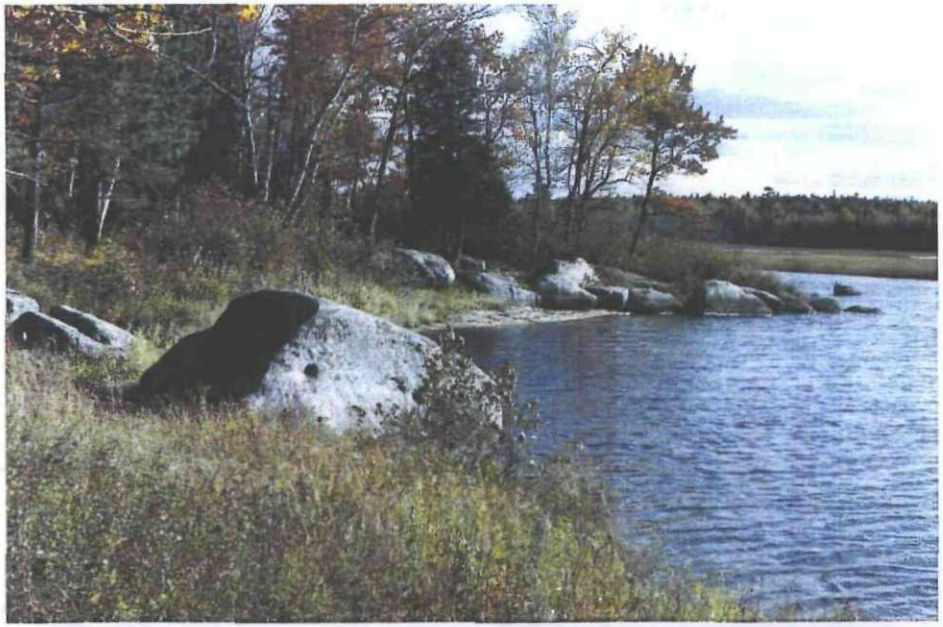
P21: Panoramic view looking west-northwest toward Robinson (May) Mountain from the Thoroughfare, a narrow passageway between Upper and Lower Mattawamkeag Lake in Island Falls. Turbines will not be visible from this portion of the Thoroughfare.



P22: Characteristic landscape on the northern shoreline of the Thoroughfare in Mattawamkeag Lake in Island Falls. Several cottages are located on the waterfront.

P23: View looking southwest toward Mattawamkeag Lake from the Thoroughfare. Low, wooded hills are characteristic of the landforms that surround the lake.

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P24: Panoramic view looking north to east from a point near Loon Ledge, west of Big Island in Mattawamkeag Lake.

P25: Continuation of the panoramic view of Mattawamkeag Lake. Ten proposed turbines in T4R3 WELS will be visible on the background hills at distances of 5.1 to 6.6 miles from this viewpoint. See Photosimulation 5 in Appendix B.

P26: Panoramic view looking northeast from Red Bridge over the Mattawamkeag River in Oakfield. Portions of 8 turbines, 5 sited in previously permitted locations, will be visible from this viewpoint. The closest turbine will be approximately 0.5 miles on the prominent hill in the photograph.

P27: No additional turbines will be visible looking south over the Mattawamkeag River.

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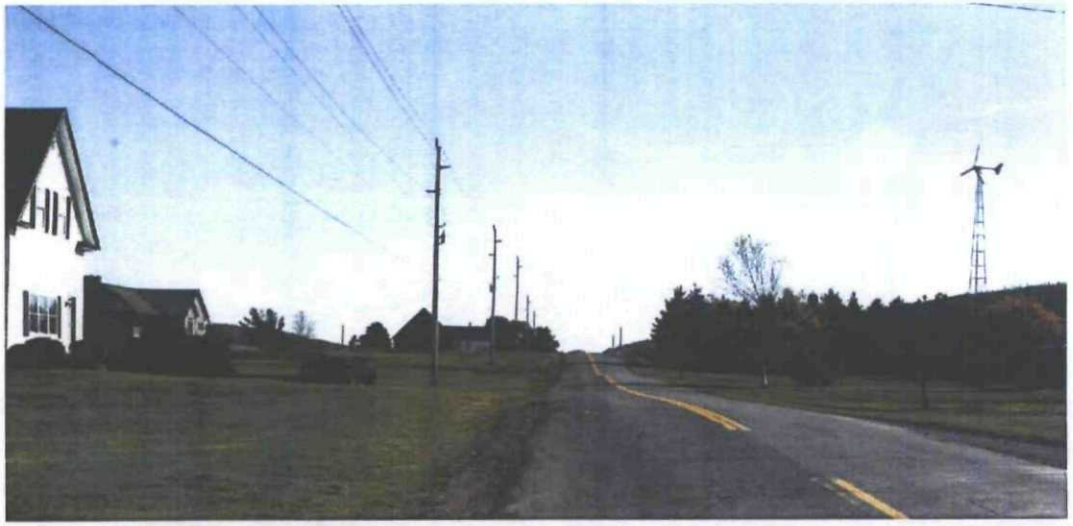
P28

P29



P30

Residential scale wind turbines are a common site in the study area. Photographs taken in Oakfield and Dyer Brook.

P31: The William Sewall House on Main Street in Island Falls. This property is on the National Register of Historic Places and will not have a view of the turbines.

P32: The Island Falls Opera House, on the corner of Patten Road and Sewall Street in Island Falls. This property is on the National Register of Historic Places and will not have a view of the turbines.

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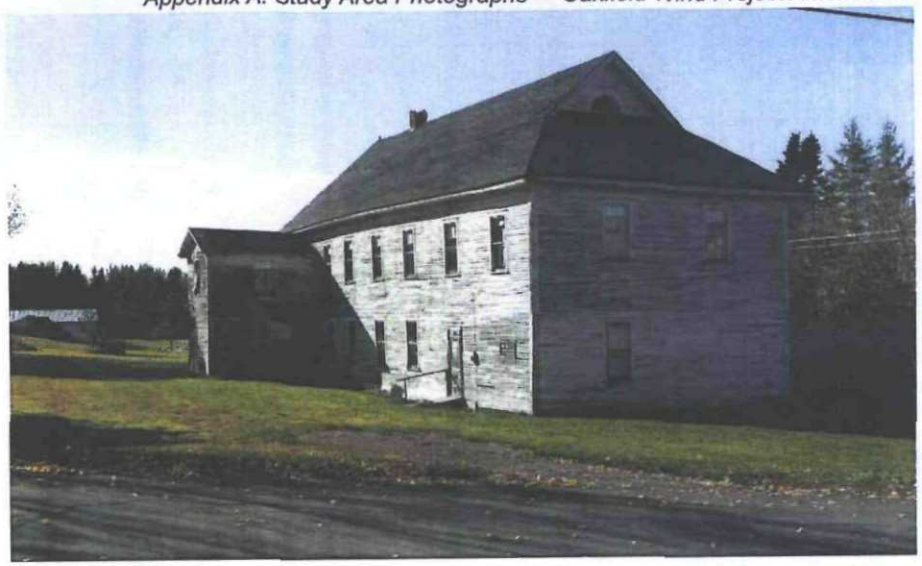
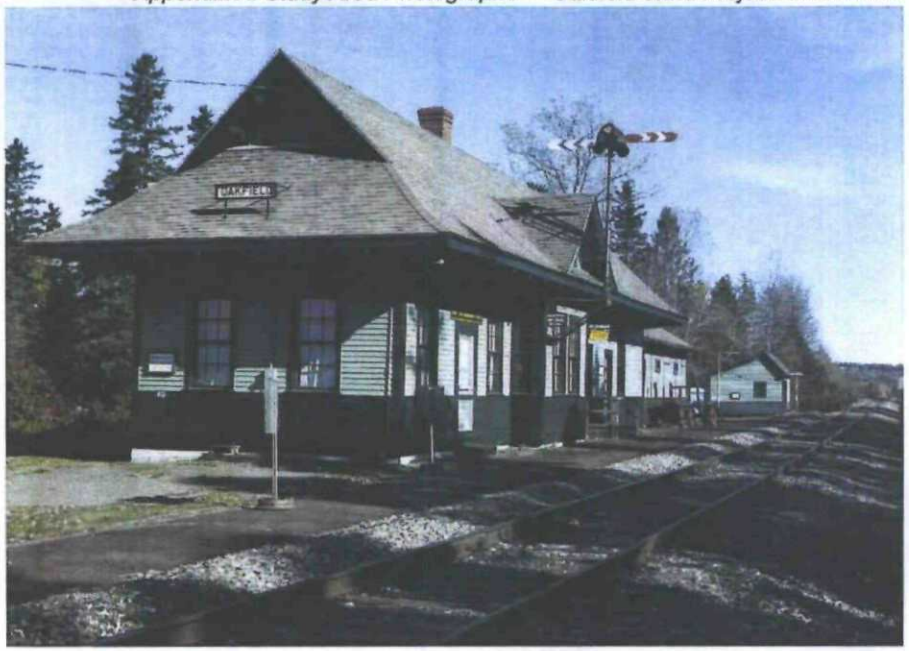
P33: Eastern face of the Oakland Grange No. 414, Ridge Road in Oakland.



P34: Northern face of the Oakland Grange.

P35: Up to 16 turbines, ten of which are in previously permitted locations, may be visible during leaf-off season on the ridge line behind the Oakfield Grange at a minimum distance of 1.7 miles. This property is on the National Register of Historic Places.

P36

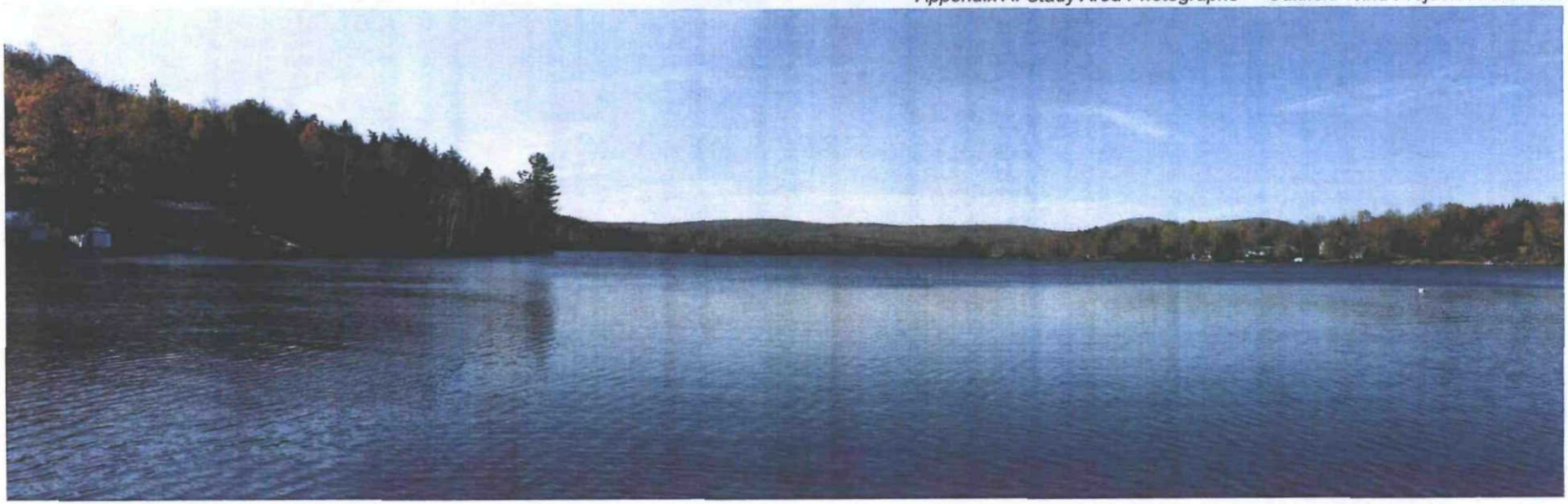


P37

P38

P39

Several views of the Oakfield Station in Oakfield. This property is on the National Register of Historic Places and will not have any views of the turbines.



P40: Panoramic view looking southwest from the boat launch on Drews Lake in New Limerick. Approximately 22 turbines will be visible from this viewpoint at distances of 3.0 to 5.2 miles. Five of the visible turbines are in locations previously permitted. Drews Lake (also called Meduxnekeag Lake) is not considered a scenic resource of state or national significance.

P41: Panoramic view looking northwest to southwest from the highly developed eastern shoreline of Drews Lake. Approximately 22 turbines proposed for the amendment will be visible on the hills to the left of center of the photograph at a distance of 2.5± miles to the nearest turbine.

297

P42: Panoramic view looking south to west from Skitacook Lake in Oakfield. Ten turbines will be visible in this portion of the view at distances of 1.1 to 2.3 miles. Skitacook Lake is not considered a scenic resource of state or national significance.

P43: Continued panoramic view looking from Skitacook Lake. The tops of approximately 15 turbines may be visible over the camps on the opposite shore, especially during leaf-off conditions.

300

P44: Panoramic view looking east from Route 2 in Dyer Brook, 1.5 miles north of the I-95 bridge. Approximately 25 turbines, 13 sited in locations previously permitted, will be visible on the hills in the midground at a distance of 3.6+/- miles.

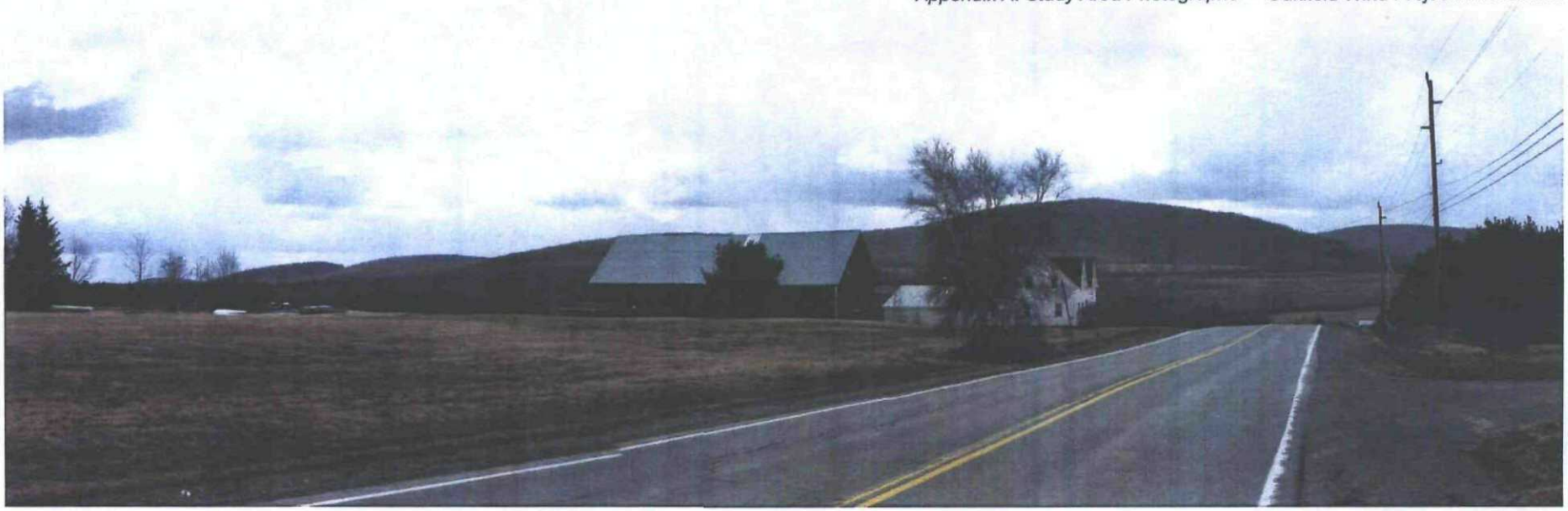
P45: Panoramic view looking east from Route 2 on the I-95 bridge. Approximately 18 turbines, 12 sited in previously permitted locations, would be visible on the left half of the hills on the horizon. The closest turbine in this view would be 3.0 miles away.

301

P46: Panoramic view looking southeast from Route 2, 0.2 miles south of the I-95 bridge, at the northern end of the Dyer Brook Agricultural District. Approximately 19 turbines, 15 sited on previously permitted locations, would be visible on the hills on the horizon (to right of barn in photo). The closest turbine in this view would be 2.8 miles away.

P47: Panoramic view looking east from the Route 2 bridge over the railroad, 1.2 miles south of the I-95 bridge. Portions of 16 turbines, 12 sited on previously permitted locations, would be visible on the hills on the horizon to the right of the tracks in this photograph. The closest turbine in this view would be 2.2 miles away.

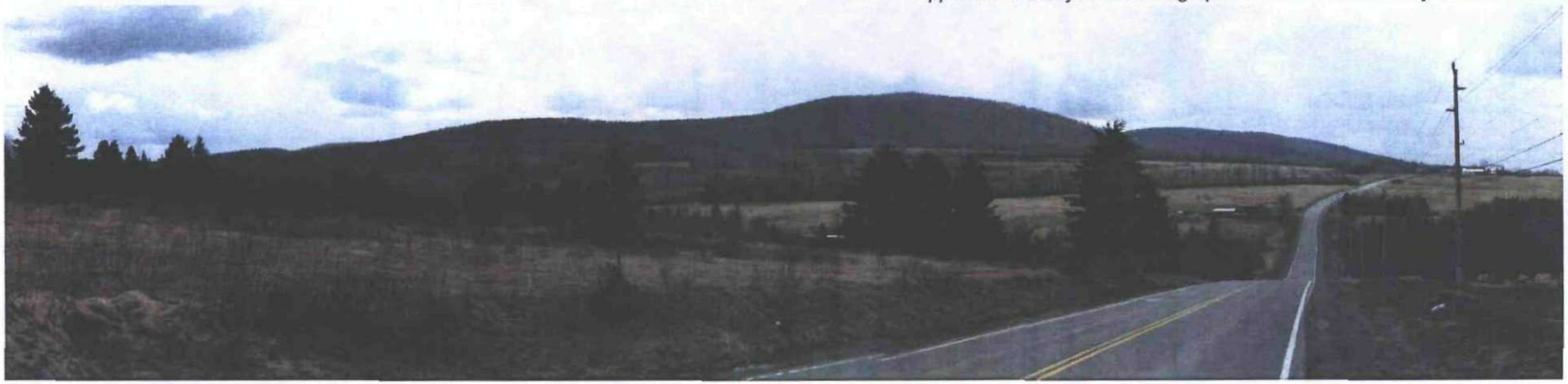
302



P48: Panoramic view looking south to southwest from Route 2 in Dyer Brook, 0.5 miles south of the railroad crossing. There will be no turbines on the hills in the midground as seen behind the farm buildings and road.

P49: Continued panoramic view looking east to southeast from Route 2 in Dyer Brook. Deciduous vegetation on the far side of the field will partially screen views of the Project from this viewpoint. Up to 13 turbines will be partially visible on the distant ridge at distances of 2.3 to 3.7 miles.

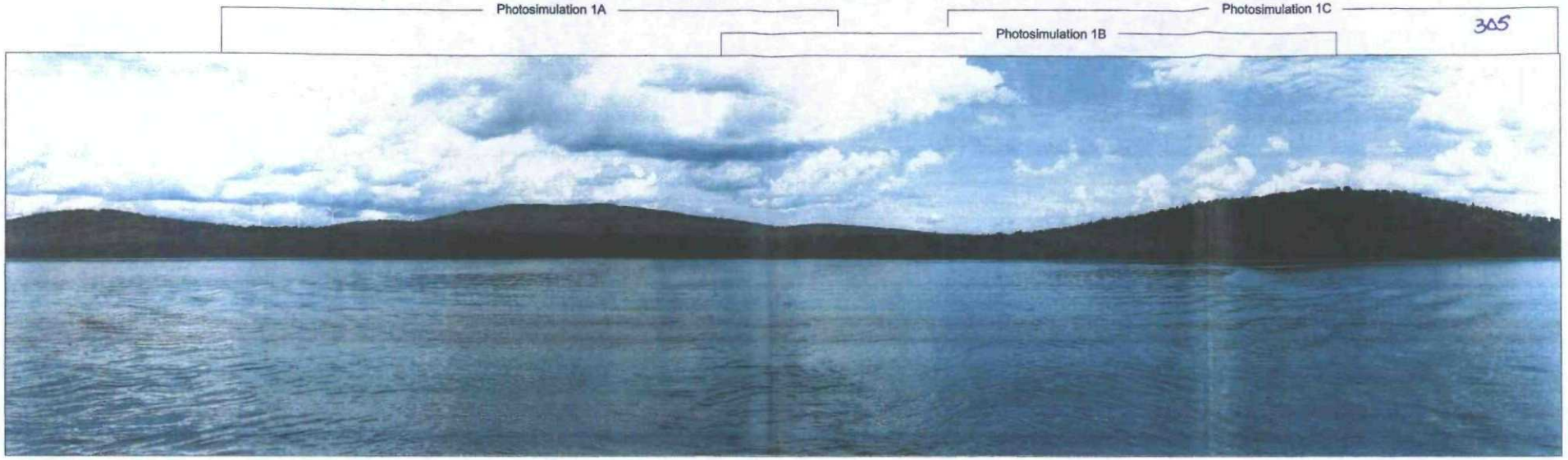
303



P50: Panoramic view looking south to southwest from Route 2 in Dyer Brook, 0.7 miles south of the railroad crossing in the Dyer Brook Agricultural District. There will be no turbines on the hills in the midground.

P51: *Continued panoramic view looking east to southeast from Route 2 in Dyer Brook within the Dyer Brook Agricultural District.* Up to 11 turbines may be visible on the background hills at distances of 2.4 to 4.4 miles. Views of approximately 9 turbines will be screened by the evergreen trees in the foreground.

304

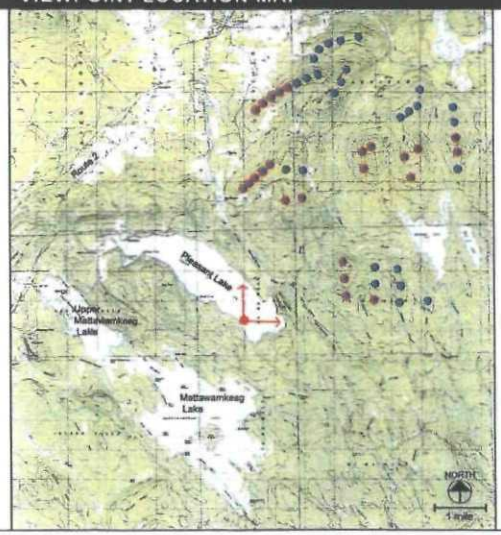


Photosimulation 1: Panoramic view looking north to east toward the proposed Oakfield Wind Project Amendment from the southeast corner of Pleasant Lake.

LEGEND

- Oakfield Turbines
- Viewpoint Location
- Visible Turbines

VIEWPOINT LOCATION MAP



PHOTOSIMULATION INFORMATION

Turbine Model:	Vestas V112 3000 112.0
View Coordinates:	Latitude: 46.011650°, Longitude: -68.150097°
Viewer Elevation:	536 ft+/-
Direction of View:	North-East
Closest Turbine:	2.3 miles
Furthest Turbines:	6.0 miles
Turbines Visible:	24+/-
Date of Photo:	07.21.09
Time of Photo:	12:50 pm

PHOTOSIMULATION 1

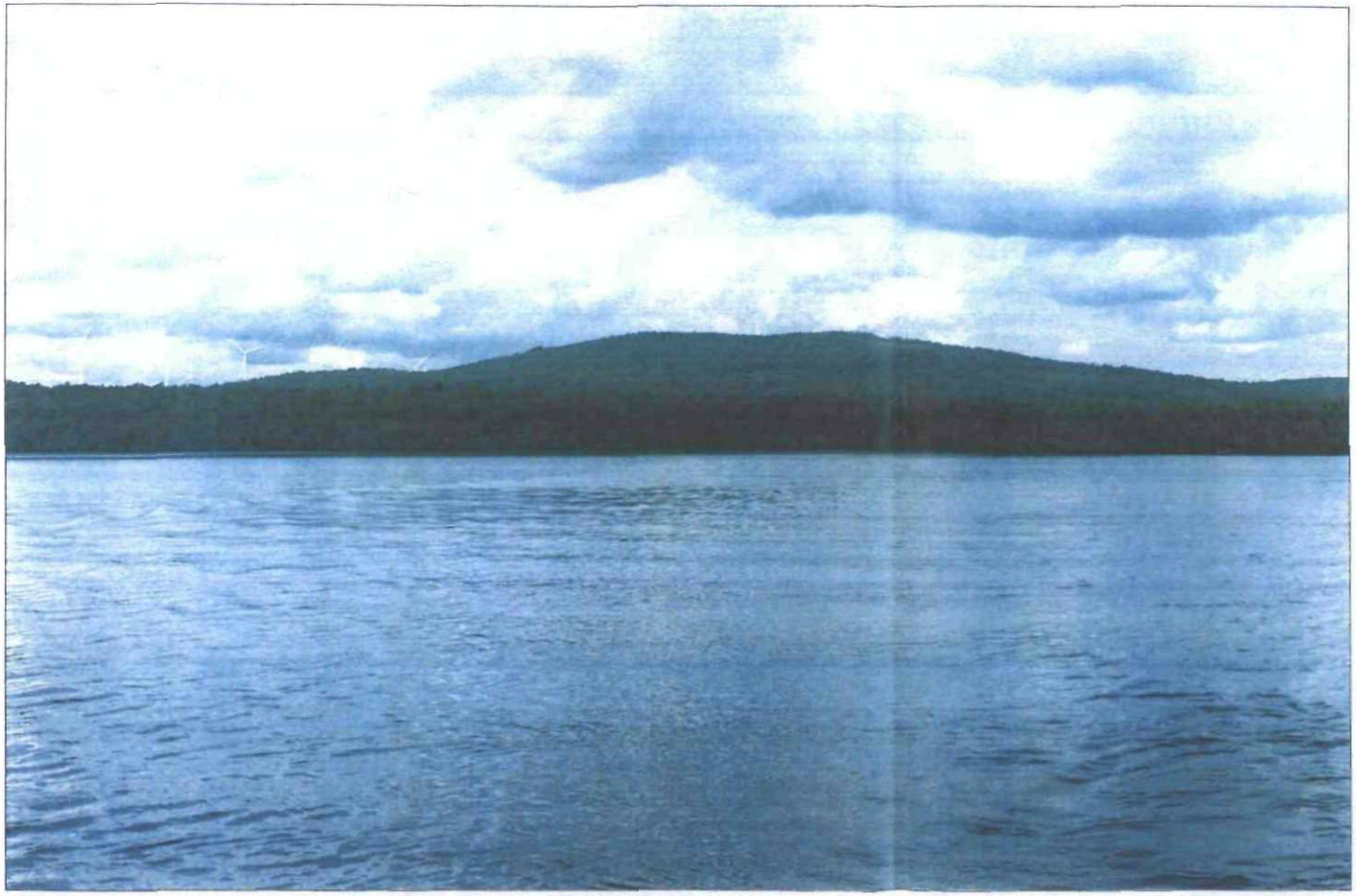
Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

Evergreen Wind Power II, LLC

tjd&a Terrence J. DeWan & Associates Landscape Architects & Planners

05.18.11

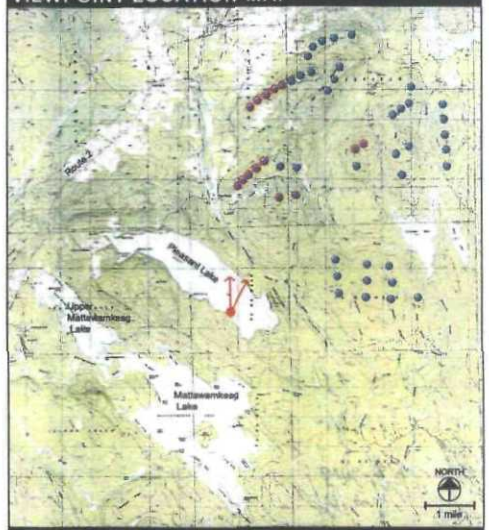


Photosimulation 1A: Normal view looking north toward the proposed Oakfield Wind Project Amendment from the southeast corner of Pleasant Lake. Approximately fourteen turbines would be visible looking in this direction at distances of 2.7 miles to 4.9 miles. Eight of the turbines visible on the left are in the same locations as previously approved turbines.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.

VIEWPOINT LOCATION MAP



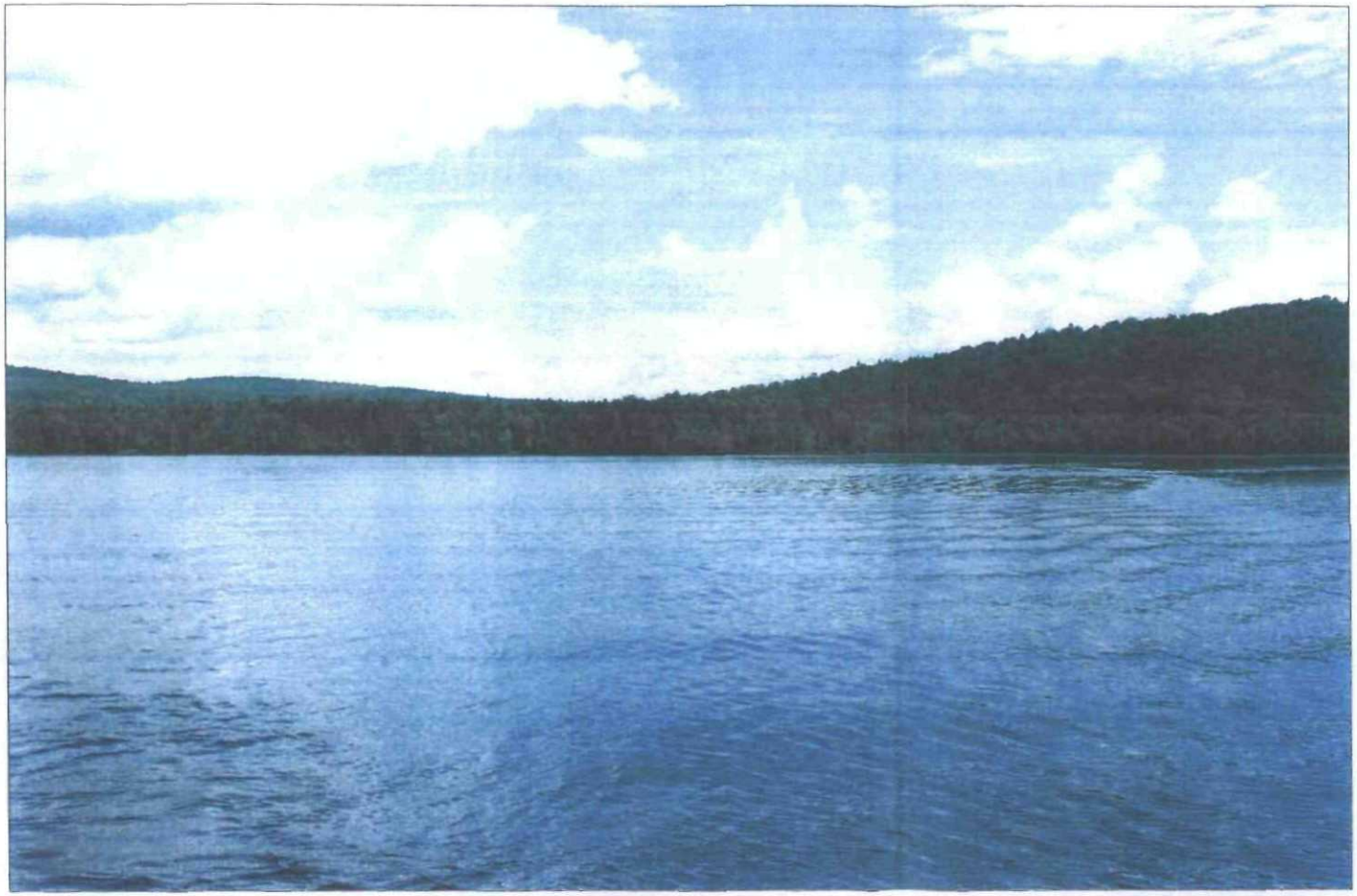
LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

PHOTOSIMULATION 1A
Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

tjd&a	Evergreen Wind Power II, LLC
05.18.11	Page 2

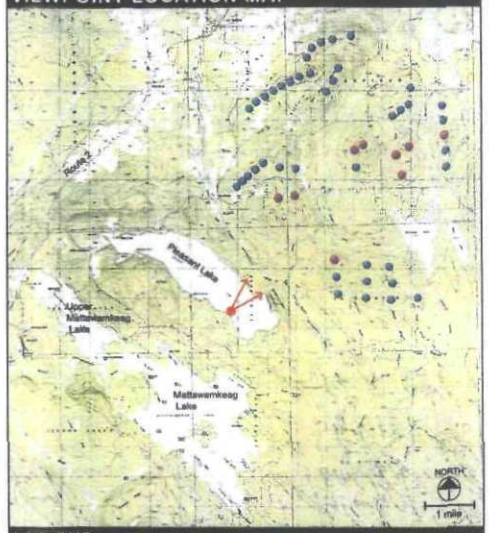


Photosimulation 1B: Normal view looking northeast toward the valley north of Outlet Mountain and the proposed Oakfield Wind Project Amendment from the southeast corner of Pleasant Lake. Portions of up to nine turbines would be visible looking in this direction at distances of 2.5 miles to 6.0 miles.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.

VIEWPOINT LOCATION MAP



LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

PHOTOSIMULATION 1B
Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

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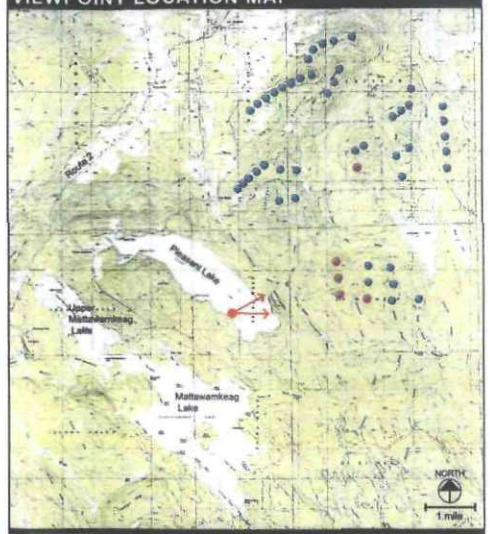
05.18.11	Page 3

Photosimulation 1C: Normal view looking east toward the proposed Oakfield Wind Project Amendment from the southeast corner of Pleasant Lake. Of the 10 turbines located in T4R3, only the nacelle and blades of one turbine are visible. Blades of three others may be visible above the treeline on Outlet Mountain as shown. The turbines are visible from distances of 2.3 miles to 4.1 miles looking in this direction.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.

VIEWPOINT LOCATION MAP



LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

PHOTOSIMULATION 1C
Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

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Photosimulation 2A

Photosimulation 2B

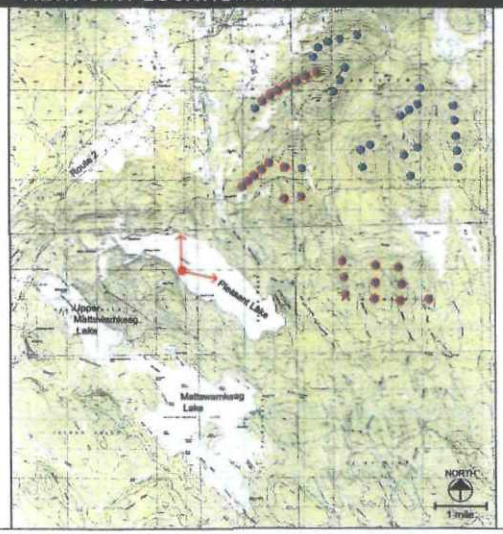
Photosimulation 2C

Photosimulation 2: Panoramic view looking northeast to east toward the proposed Oakfield Wind Project Amendment from near the center of Pleasant Lake.

LEGEND

- Oakfield Turbines
- Viewpoint Location
- Visible Turbines

VIEWPOINT LOCATION MAP



PHOTOSIMULATION INFORMATION

Turbine Model:	Vestas V112 3000 112.0
View Coordinates:	Latitude: 46.024501°, Longitude: -68.174078°
Viewer Elevation:	536 ft+/-
Direction of View:	North-East
Closest Turbine:	2.2 miles
Furthest Turbines:	5.2 miles
Turbines Visible:	25+/-
Date of Photo:	07.21.09
Time of Photo:	12:43 pm

PHOTOSIMULATION 2

Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

Evergreen Wind Power II, LLC

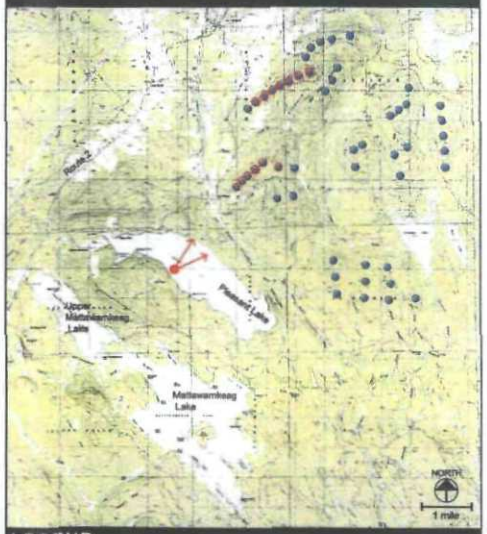
tjd&a Terrence J. DeWan & Associates Landscape Architects & Planners

05.18.11

Photosimulation 2A: Normal view looking north to northeast toward the proposed Oakfield Wind Project Amendment from near the center of Pleasant Lake. Portions of up to thirteen turbines would be visible looking in this direction at distances of 2.2 miles to 5.1 miles.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.



LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

PHOTOSIMULATION 2A
Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

tjd&a	Evergreen Wind Power II, LLC
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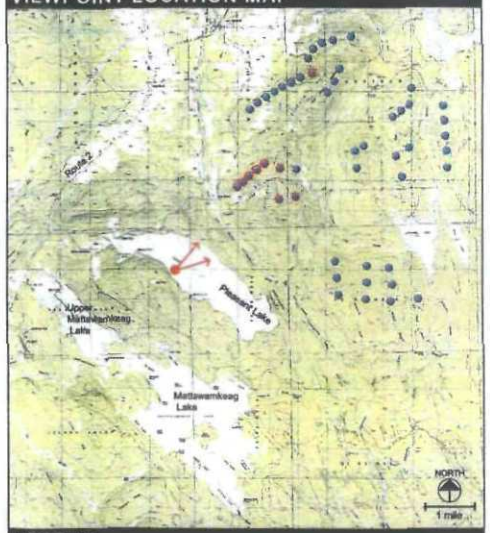
Photosimulation 2B: Normal view looking northeast toward the proposed Oakfield Wind Project Amendment from near the center of Pleasant Lake. Portions of up to nine turbines would be visible looking in this direction at distances of 2.2 miles to 5.1 miles.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.

VIEWPOINT LOCATION MAP



LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

PHOTOSIMULATION 2B
Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

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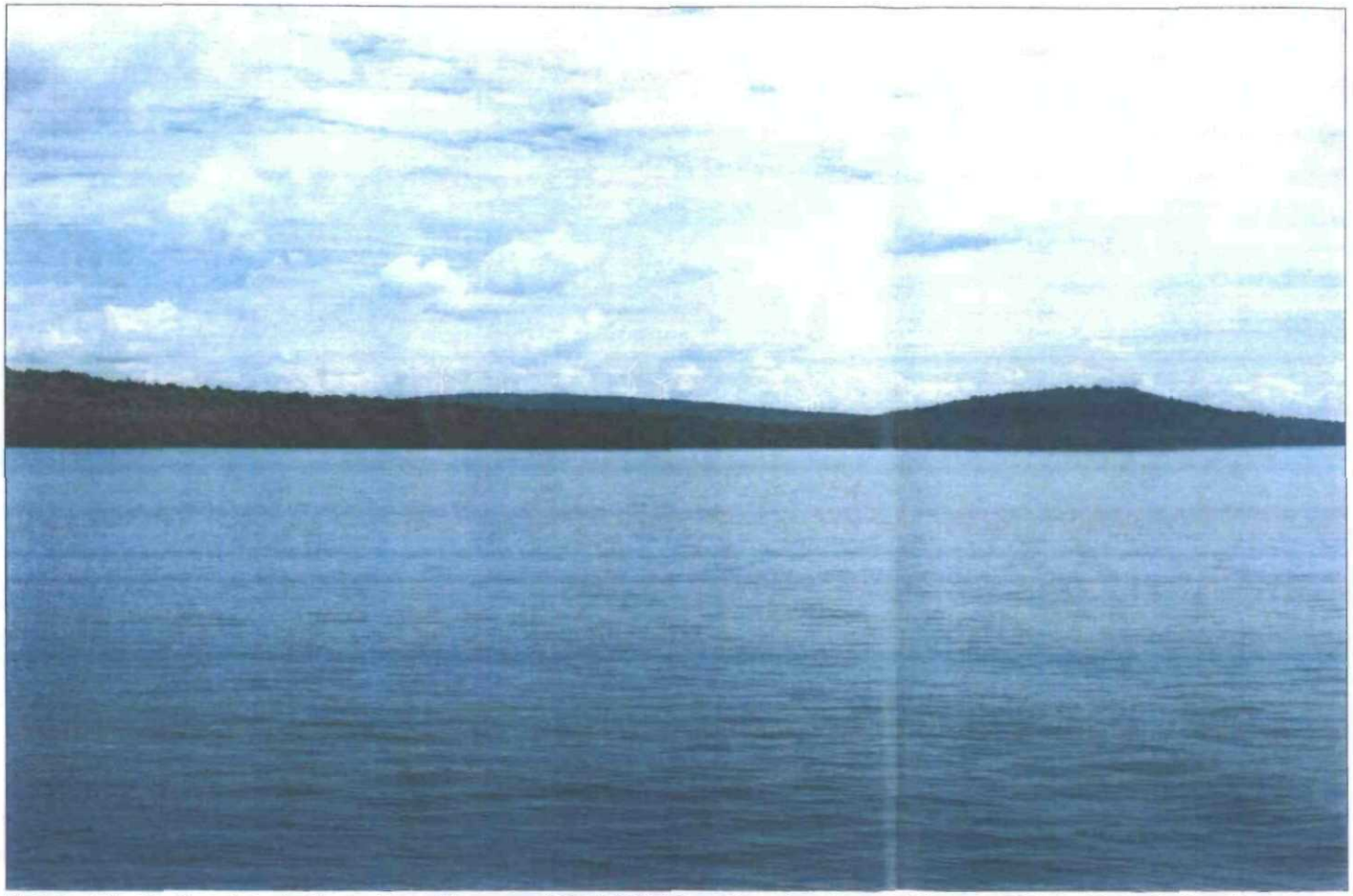
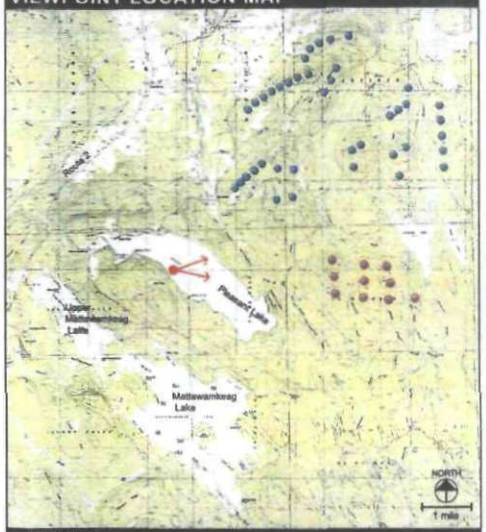


Photosimulation 2C: Normal view looking east toward the proposed Oakfield Wind Project Amendment from near the center of Pleasant Lake. Portions of up to ten turbines would be visible from this viewpoint at distances of 3.4 miles to 5.2 miles.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.

VIEWPOINT LOCATION MAP



LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

PHOTOSIMULATION 2C
Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

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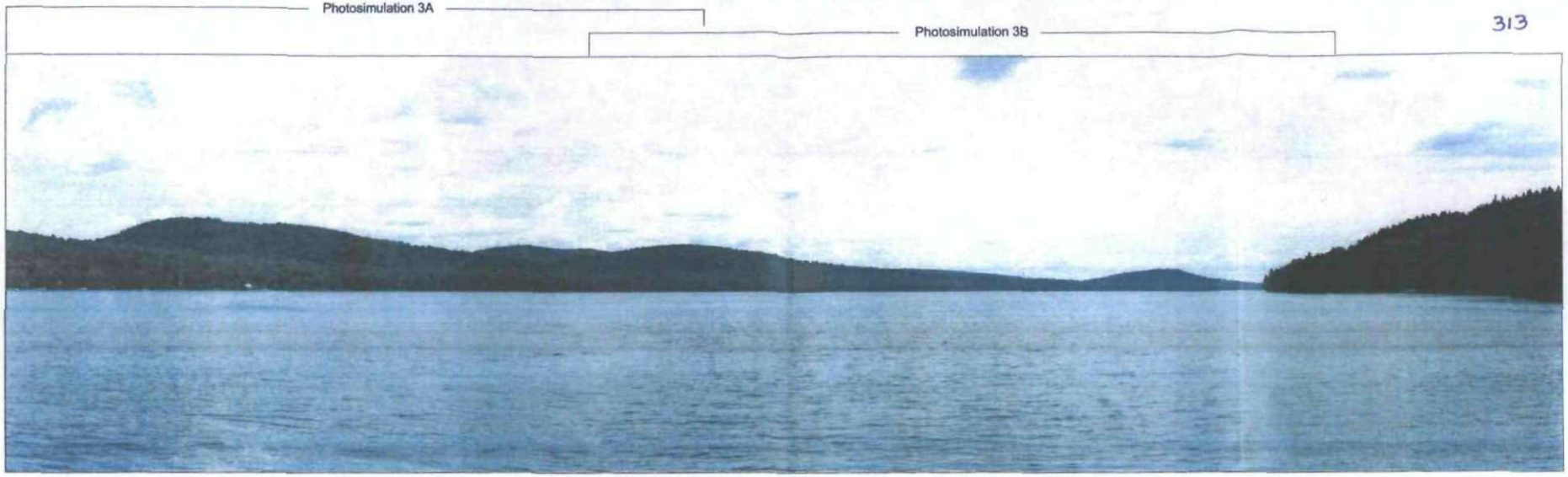
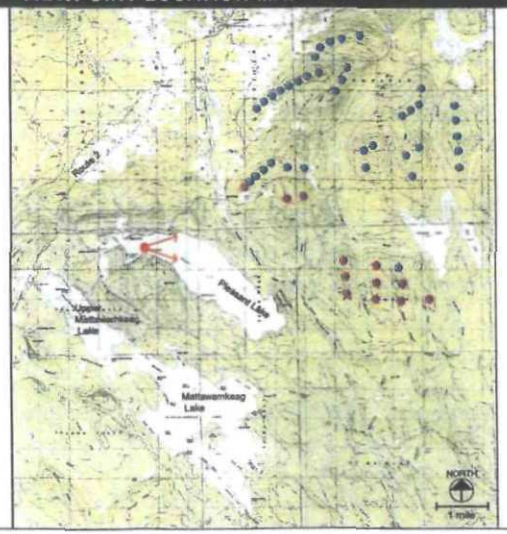


Photosimulation 3: Panoramic view looking northeast to southeast toward the proposed Oakfield Wind Project Amendment from north of Whitney Point on Pleasant Lake.

LEGEND

- Oakfield Turbines
- Viewpoint Location
- Visible Turbines

VIEWPOINT LOCATION MAP



PHOTOSIMULATION INFORMATION

Turbine Model:	Vestas V112 3000 112.0
View Coordinates:	Latitude: 46.031845°, Longitude: -68.192052°
Viewer Elevation:	536 ft+/-
Direction of View:	Northeast-Southeast
Closest Turbine:	2.5 miles
Furthest Turbines:	6.1 miles
Turbines Visible:	12+/-
Date of Photo:	07.21.09
Time of Photo:	12:50 pm

PHOTOSIMULATION 3

Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

Evergreen Wind Power II, LLC

tjd&a Terrence J. DeWan & Associates Landscape Architects & Planners

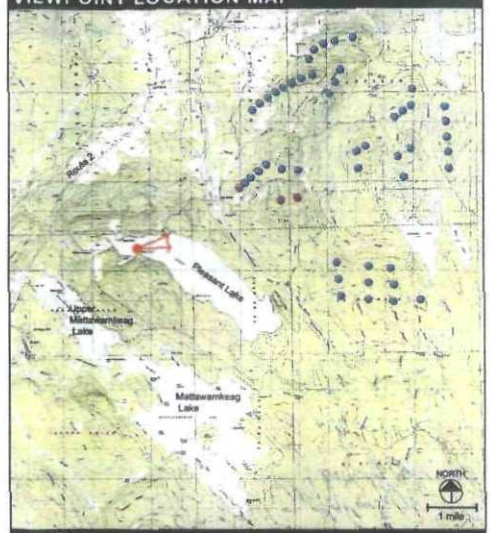
05.18.11

Photosimulation 3A: Normal view looking northeast toward the proposed Oakfield Wind Project Amendment from north of Whitney Point on Pleasant Lake. Approximately three turbines would be visible looking in this direction at distances of 2.5 miles to 3.6 miles.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.

VIEWPOINT LOCATION MAP



LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

PHOTOSIMULATION 3A
Pleasant Lake
T4 R3 WELS

OAKFIELD WIND PROJECT AMENDMENT

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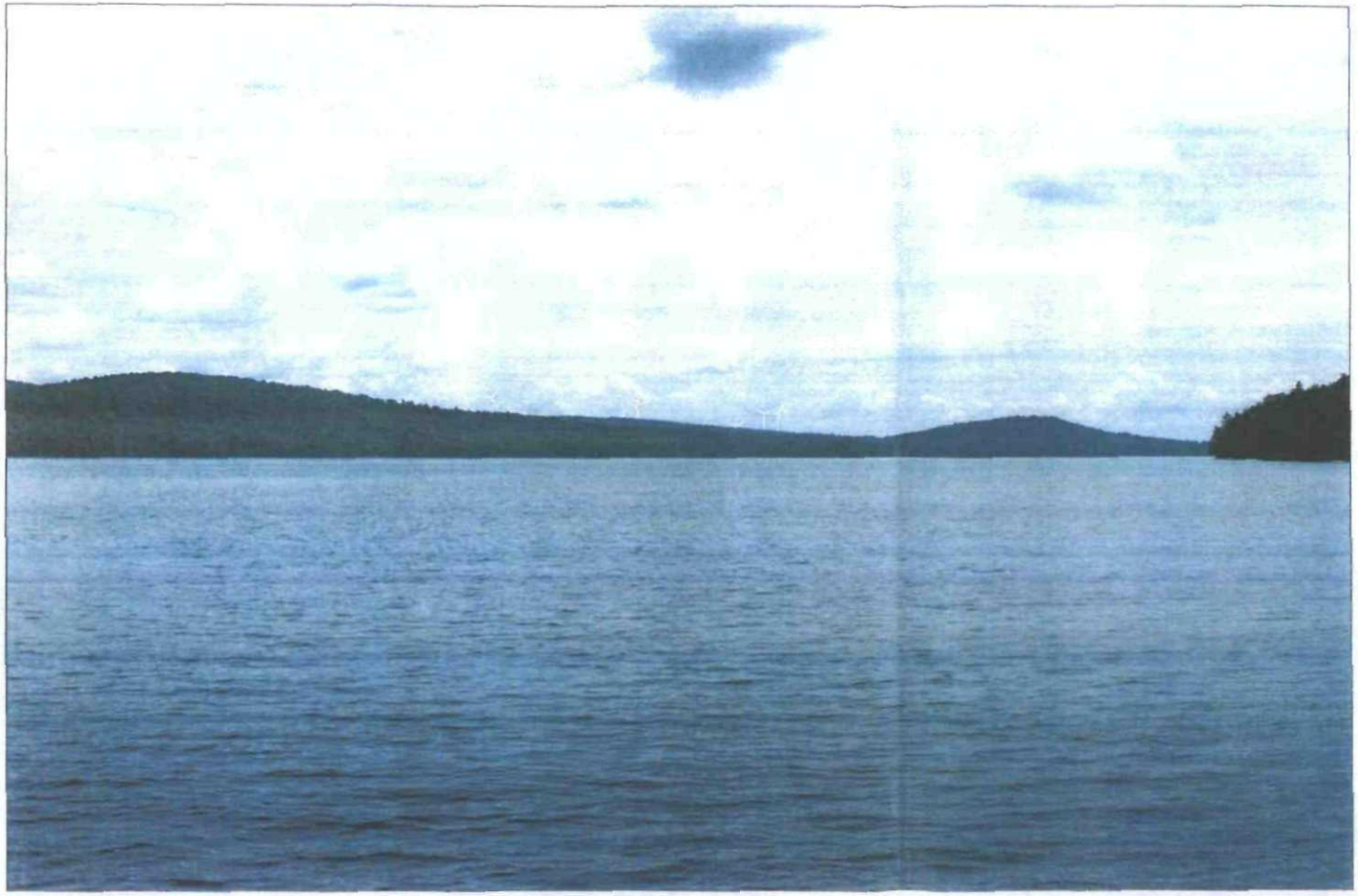
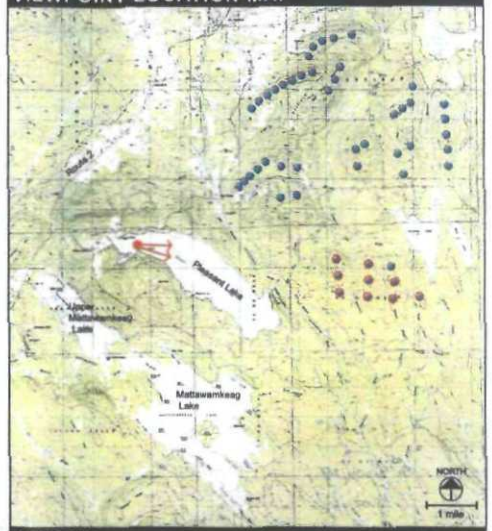


Photosimulation 3B: Normal view looking southeast toward the proposed Oakfield Wind Project Amendment from north of Whitney Point on Pleasant Lake. Approximately nine turbines would be visible looking in this direction at distances of 4.3 miles to 6.1 miles.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.

VIEWPOINT LOCATION MAP



LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

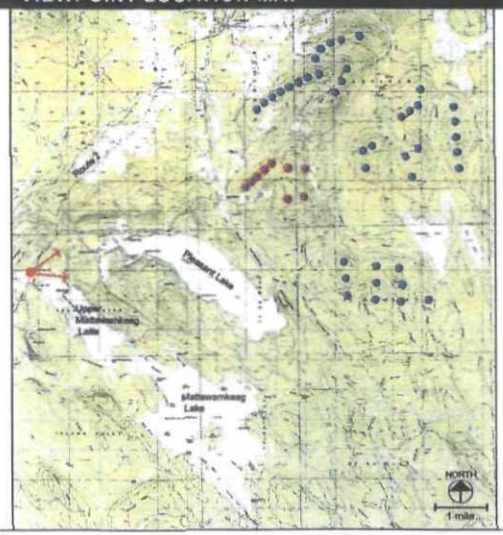
PHOTOSIMULATION 3B
Pleasant Lake
T4 R3 WELS

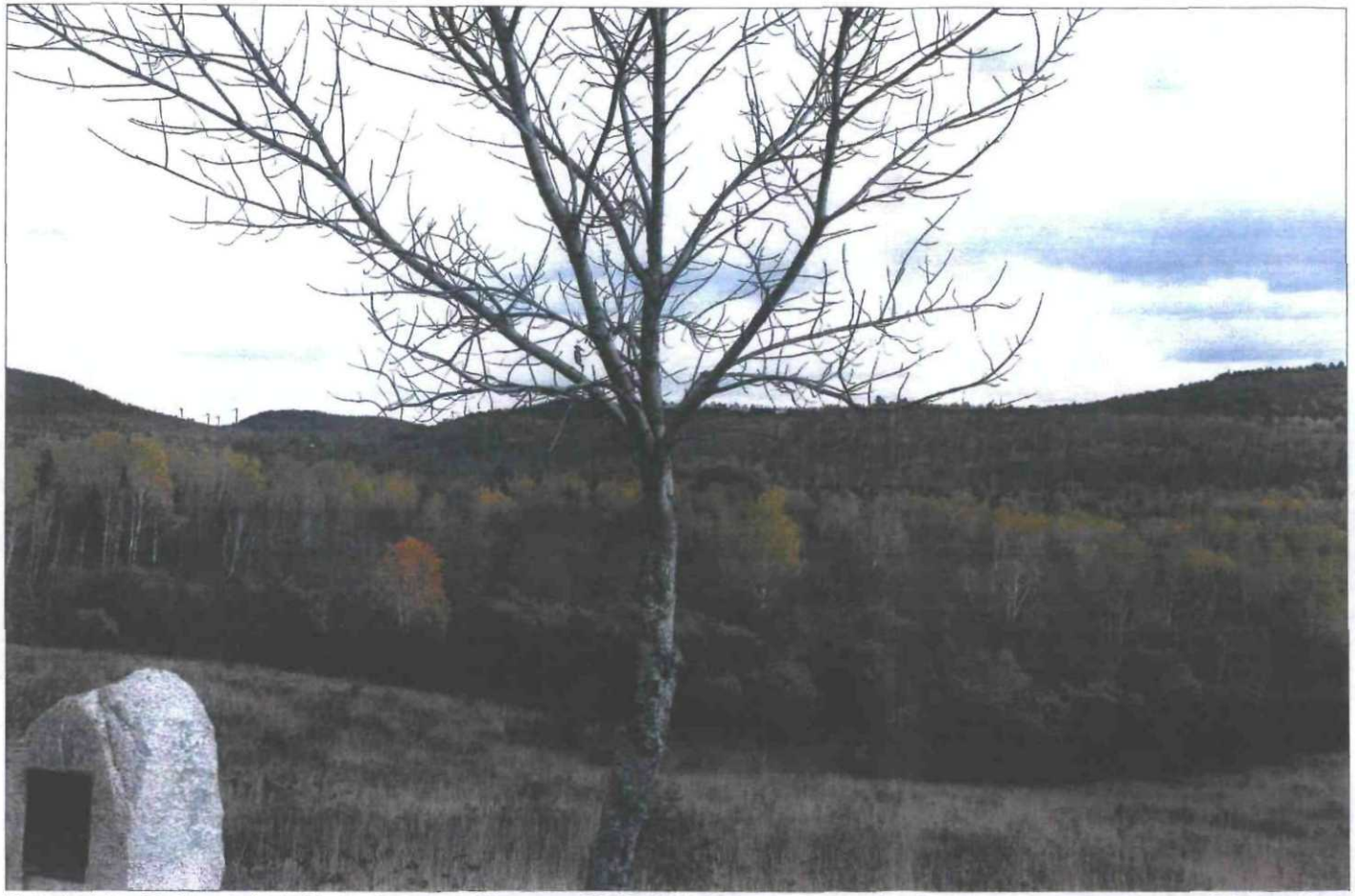
OAKFIELD WIND PROJECT AMENDMENT

tjd&a	Evergreen Wind Power II, LLC
05.18.11	Page 11

Photosimulation 4A

Photosimulation 4: Panoramic view looking northeast to southeast toward the proposed Oakfield Wind Project Amendment from Route 2 near the northwest corner of Mattawamkeag Lake.

LEGEND	VIEWPOINT LOCATION MAP	PHOTOSIMULATION INFORMATION	
Oakfield Turbines Viewpoint Location Visible Turbines		Turbine Model: Vestas V112 3000 112.0 View Coordinates: Latitude: 46.025138°, Longitude: -68.239820° Viewer Elevation: 542 ft+/- Direction of View: Northeast-Southeast Closest Turbine: 4.8 miles Furthest Turbines: 6.1 miles Turbines Visible: 9+/- Date of Photo: 10.15.09 Time of Photo: 12:30 pm	**PHOTOSIMULATION 4** **Route 2** **Island Falls** **OAKFIELD WIND PROJECT AMENDMENT** Evergreen Wind Power II, LLC tjd&a Terrence J. DeWan & Associates Landscape Architects & Planners 05.18.11 | Page 12

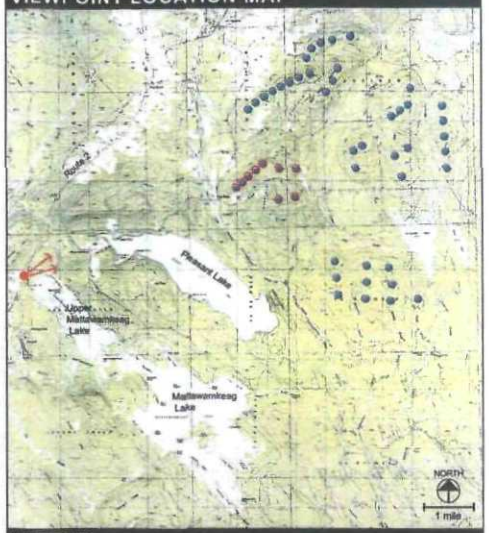


Photosimulation 4A: Normal view looking northeast toward the proposed Oakfield Wind Project Amendment from Route 2 near the northwest corner of Mattawamkeag Lake. Approximately nine turbines would be visible from this viewpoint at distances of 4.8 miles to 6.1 miles.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.

VIEWPOINT LOCATION MAP



LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

PHOTOSIMULATION 4A
Route 2
Island Falls

OAKFIELD WIND PROJECT AMENDMENT

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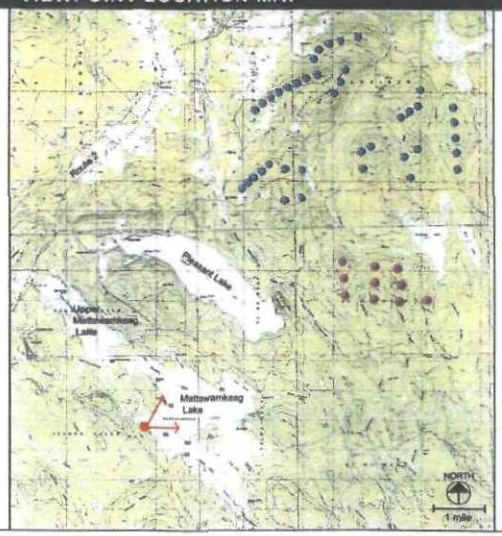
Photosimulation 5A

Photosimulation 5: Panoramic view looking northeast toward the proposed Oakfield Wind Project Amendment in T4R3 WELS from a point near Loon Ledge, west of Big Island, on Mattawamkeag Lake in Island Falls.

LEGEND

- Oakfield Turbines
- Viewpoint Location
- Visible Turbines

VIEWPOINT LOCATION MAP



PHOTOSIMULATION INFORMATION

Turbine Model:	Vestas V112 3000 112.0
View Coordinates:	Latitude: 45.978962°, Longitude: -68.192657°
Viewer Elevation:	432 ft+/-
Direction of View:	Northeast
Closest Turbine:	5.1 miles
Furthest Turbines:	6.6 miles
Turbines Visible:	10+/-
Date of Photo:	10.16.09
Time of Photo:	3:41 pm

PHOTOSIMULATION 5

Mattawamkeag Lake Island Falls

OAKFIELD WIND PROJECT AMENDMENT

Evergreen Wind Power II, LLC

tjd&a Terrence J. DeWan & Associates Landscape Architects & Planners

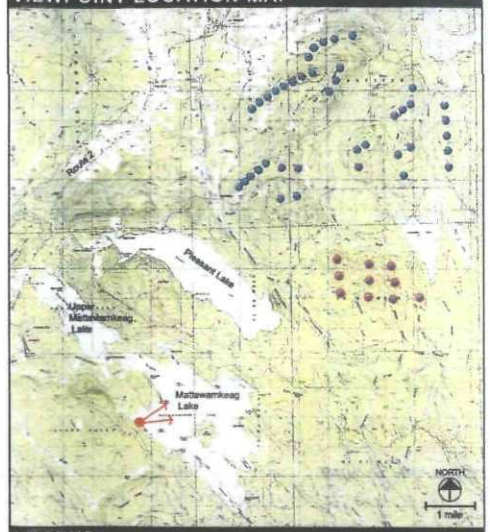
05.18.11

Photosimulation 5A: Normal view looking northeast toward the proposed Oakfield Wind Project Amendment in T4R3 WELS from a point near Loon Ledge, west of Big Island, on Mattawamkeag Lake in Island Falls. Approximately ten turbines would be visible from this viewpoint at distances of 5.1 miles to 6.6 miles.

NOTES

Viewer should hold this image, when printed 11" x 17", approximately 16.5" from eye to replicate actual view.

VIEWPOINT LOCATION MAP



LEGEND

Oakfield Turbines | Visible Turbines | Viewpoint Location

PHOTOSIMULATION 5A
Mattawamkeag Lake
Island Falls

OAKFIELD WIND PROJECT AMENDMENT

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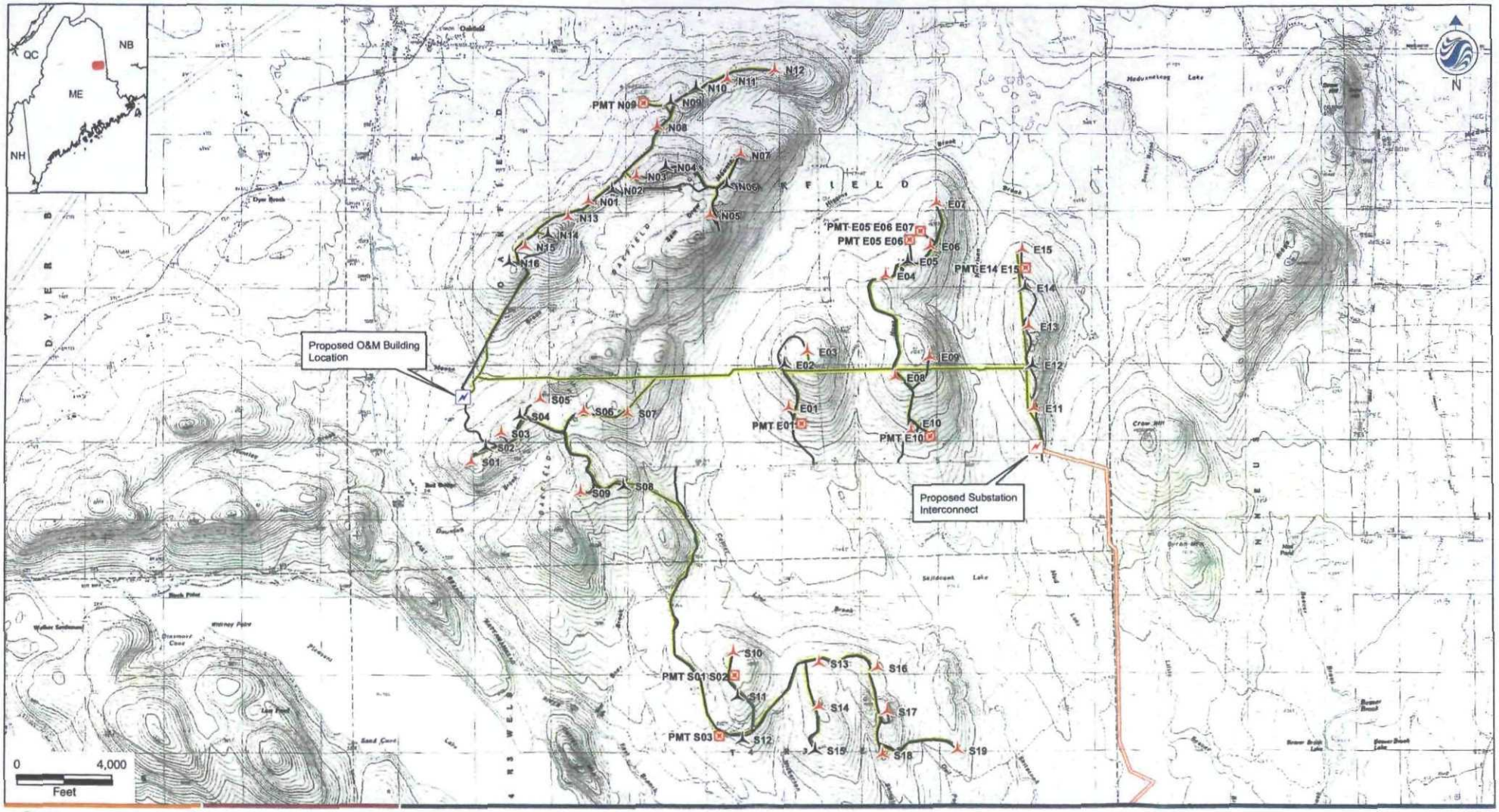

Stantec Consulting Services Inc.
30 Park Drive
Topsham, ME USA
04086
Phone (207) 729-1199
Fax: (207) 729-2715
www.stantec.com

Legend

Proposed Turbine (Vesta 50)

- Unlit / White Paint Only (17 Turbines)
- Simultaneously Flashing Red Lights (33 Turbines)

Permanent MET Tower

- Red Lights and Paint

- Proposed 115kv Transmission Corridor
- Proposed Collector Corridor
- Proposed Access Roads

195600518

Client/Project
Evergreen Wind Power II, LLC
Oakfield Wind Project Amendment
Oakfield, Maine

Figure No.
1A

Title
FAA Lighting Plan
June 2011